

THE EXTENT TO WHICH TEACHERS NURTURE CREATIVE THINKING IN THE GRADE 9 SOCIAL SCIENCES CLASSROOM THROUGH THE CHOICE OF TEACHING METHODS

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DEDICATION

This dissertation is dedicated to my wife, Laurel Lydia Bunt, who offered me unconditional love and support throughout the course of this study. I also dedicate this work to my parents, Prof. John Reginald Bunt and Erna Bunt, who supported me all the way since the beginning of my studies and are an inspiration to further my academic career.

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SUMMARY

The nurturing of creative thinking skills is one of the cornerstones of Outcomes-Based Education (OBE). This study investigated to what extent teachers nurture the development of creative thinking through the choice of teaching methods, which include the application of teaching strategies and the utilization of resources, in the Grade 9 Social Sciences classroom.

A literature study was undertaken to highlight the importance and nature of the development of creative thinking skills, and to establish which teaching methods, strategies and resources nurture the development of creative thinking in Social Sciences classrooms. The literature review provided the conceptual framework for the study, as well as the framework for designing a questionnaire that was utilized to obtain the perceptions of learners regarding the teaching methods, strategies and resources that their teachers use to nurture the development of creative thinking in the Grade 9 Social Sciences classroom.

By means of a sequential explanatory mixed method research design, quantitative data were collected by means of a self-constructed questionnaire that was administrated to a convenient sample of a purposively selected group of Grade 9 Social Sciences learners (n=399) in the D7 district of the Gauteng Department of Education. Following this, a qualitative interview, which was constructed from the findings in the questionnaire, was conducted with purposively selected Grade 9 Social Sciences teachers (n=6) in order to ascertain the reasons behind the quantitative findings.

The combination of quantitative and qualitative data revealed differences and similarities in opinion related to the teaching methods, strategies and resources that teachers use for nurturing creative thinking. In essence, the data revealed that teachers are, to some extent, nurturing creative thinking through their choice of teaching methods and strategies as well as the questioning techniques that they choose. However, the responses did not convincingly indicate to the researcher that the nurturing of creative thinking skills takes place on a regular and frequent basis. According to the learner responses, it appeared that teaching and learning methods and strategies that

promote indirect, independent, interactive and experiential learning, are under-used by the Grade 9 Social Sciences teachers. In addition, resources that nurture creative elaboration such as political cartoons and photographs appear to be under-utilized.

This study is concluded with recommendations to teachers concerning which teaching methods, strategies and resources could be implemented in order to promote the nurturing of creative thinking in the Grade 9 Social Sciences classroom.

Key words: cognition, cognitive development, creative thinking, creative fluency, creative flexibility, creative elaboration, originality, teaching methods and strategies, teaching resources.

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<http://edorigami.wikispaces.com/Bloom's+Digital+Taxonomy?responseToken=627e3ec868edb6f0f807ca6ab262c12d>

Figure2.3: Bloom's Taxonomy for Thinking: Bloom's rose

http://en.wikipedia.org/wiki/File:Blooms_rose.svg

Figure3.1: Teaching methods and underlying strategies

<http://www.sasked.gov.sk.ca/docs/native10/images/Image18jpg>

Figure 3.2: Six thinking hats

<http://blogs.funiber.org/formacion-profesores/2011/01/23/six-thinking-hats/>

CHAPTER 1

INTRODUCTION AND STATEMENT OF THE PROBLEM

1.1 INTRODUCTION

Social Sciences, which constitute the subjects History and Geography (Department of Education, 2003:5), have come under heavy scrutiny, considering their value for learners who choose the subjects, to such an extent that they are widely being considered as useless. Even those who chose the subjects consider the teaching of History and Geography as dull and boring (Jackson, 2005:8).

The low value linked to History and Geography has been cited as a global phenomenon, which has now evolved into a negative stereotype surrounding the subjects. Linked to the view of Gorn (2006:1), it is the researcher's opinion that traditionalist teaching methods and ideologies, such as memorization and rote learning of dates and events that allow very little room for creative thinking during teaching, contribute to the low value attached to History and Geography.

According to Gorn (2006:1), History and Geography allow for a plethora of creative thinking, therefore the Social Sciences teacher has to move beyond the traditional teaching paradigm and allow the application of new and interesting methods to teach the subjects.

According to the researcher's own observations and experiences, the problem of undervaluing History and Geography has been around for a long time. Within the South African context, it surfaced after the 1994 elections when Outcomes-Based Education (OBE) was first implemented. The government at the time, when implementing its education policy, decided to lessen the importance of the subject, as it dealt with the pains of the past Apartheid regime. Therefore, change warranted the slow demise of the subject. Even to this day, only a small fraction of schools still offer History/Geography as a subject when entering the Further Education and Training (FET) phase.

Another cause for concern noticed by the researcher is that there is an alarming decrease in History and Geography being chosen in Grade 10. A question that could be asked is whether a lack of creative thinking during the teaching of the Social Sciences (Grades 7-9) prevents learners from choosing the subjects. According to the literature, learners are hesitant to choose the subjects as they perceive them to be either useless to their future or, more often, that they are too dull (Jackson, 2005:8).

The researcher argues that it is not only subject knowledge, which is important when teaching Social Sciences, but also the way this knowledge is transferred that can make all the difference in the education process. According to the researcher, the process of knowledge transfer in Social Sciences should focus on enhancing creative thinking. In this regard, the National Curriculum Statement (NCS) that guides the implementation of education in South Africa requires learners to think critically and creatively as part of the critical cross-field outcomes (Department of Education, 2003:8). These outcomes necessitate teachers' classroom practices contributing to the nurturing of creative thinking in all subject fields, and are supported by the new Curriculum and Assessment Policy that will be phased in during 2013 for Grade 9 Social Sciences (Department of Basic Education, 2011:4,5). Linked to the nurturing of creative thinking during teaching and learning, the literature highlights the importance of adopting a facilitation approach to teaching and learning, which *inter alia* promotes active and interactive learning, sharing of knowledge, the encouragement of deep and wider thinking and learner involvement in the construction of knowledge (Kim, 2005:8; Maxim, 2010:35; Sessoms, 2008:38) (*cf.* 3.4-3.6).

The cited problem of Social Sciences not being taken as a serious subject does not only occur locally but also on an international scale (Gorn, 2006:1). In the United States (U.S.) of America, statistics revealed that the U.S. History National Assessment of Education Progress (NAEP) proclaimed that the American society is raising American youth who are not historically literate. American learners have developed a paradigm that history is not considered as a subject of importance and the value of this subject is no longer existent (Gorn, 2006:1). Perhaps this negative perception stems from the lack of

creative development within the History classroom due to the application of teaching methods that do not allow for learner involvement in the construction of knowledge.

At the onset of this research, a search was undertaken to locate studies that focused on a similar topic, namely the nurturing of creative thinking through the choice of teaching methods, in order to determine how the present study could address gaps or extend the present knowledge base regarding the nurturing of creative thinking in the Social Sciences.

Internationally, eight studies were located as being relevant to this study. All these studies indicated that teachers' beliefs, their choice of teaching methods, their teaching styles and the choice of learning activities directly influence the development of creative thinking among learners. A number of research studies (Jennings, 2005; Koon, 1980; Levine, 1996; Lilly, 2002; Mammucari, 1989; Murphy, 1988; Narramore, 1992; Wang, 2007) investigated the merits of modifications to classroom practices in general in order to nurture creative thinking. Although these studies indicated that purposeful efforts to nurture creative thinking were effective, none of them focused on a specific subject field. The researcher thus concludes that it is possible to nurture creative thinking among learners, and that teachers should purposefully create opportunities for the nurturing of creative thinking abilities of learners by teaching "*outside of the box*" (Lilly, 2002).

At national level, it appeared as if the topic of creative thinking in the classroom has not received enough attention. The few national studies that were found were only vaguely relevant and extremely outdated, going back to the 1970s. The lack of attention to research related to the nurturing of creative thinking suggests that more research should be devoted to the topic of nurturing creative thinking among learners in South Africa to further the understanding within a South African context.

Furthermore, previous research that was carried out by the researcher in 2009 (Bunt, 2009) as part of a qualitative pilot study focused on the extent to which teachers nurture creative thinking in the Grade 10 History classroom through the choice of teaching methods at one school in the D7 district of the Gauteng

province. The findings of the study made the researcher aware of possible problems related to the nurturing of creative thinking during teaching. Findings revealed that, at the particular school, creative thinking appeared not to be nurtured, as the teachers mainly utilized transmission and reception teaching methods that stifled creative thinking. This finding made the researcher aware that there could be problems with the nurturing of creative thinking, which require more intensive and extended research. The researcher decided to focus the present research on the school phase preceding the Further Education and Training (FET) Phase, namely the Intermediate and Senior Phase, based on the following reason. If problems related to the nurturing of creative thinking during teaching were detected, these problems could be addressed in order to influence learners towards a more positive attitude in choosing History or Geography as a subject in the FET-phase (Jackson, 2005:8).

The researcher noticed that the completed studies approached the teaching of creative thinking by using either quantitative or qualitative research methodologies that involved the perspectives of teachers in this regard. This study wishes to extend the present research by utilizing a combined quantitative and qualitative research design involving learners and teachers in the data collection process. The researcher first aims to look for evidence regarding creative thinking by quantitatively identifying the characteristics of teaching in classrooms and secondly by qualitatively gaining a deeper understanding of the nurturing of creative thinking.

Furthermore, the cited studies focused on teaching creative thinking in general, without specifically focusing on the nurturing of creative thinking through the choice of teaching methods in relation to a specific subject field. This study therefore wishes to combine learner perceptions as well as teachers' understanding of the nurturing of creative thinking in order to determine the extent to which creative thinking is presently nurtured in Grade 9 Social Sciences (History and Geography) classrooms in the D7 district, where the above-mentioned pilot study was conducted. The research will specifically look at academic creativity (*cf.* 2.4.4.2) within the school

environment, as the purpose of the study is to determine the extent to which creative thinking is nurtured in the Social Sciences classroom.

Based on the aforementioned discussion, the researcher wishes to formulate the purpose statement for this study as follows:

The purpose of this sequential explanatory mixed method study is to investigate the perceptions of learners and to explore the understanding of teachers in relation to the extent to which creative thinking is being nurtured through the choice of teaching methods in Grade 9 Social Sciences classrooms in the D7 District in the Gauteng Province by means of questionnaires and structured one-to-one interviews.

1.2 CONCEPTUAL FRAMEWORK:

The study is conceptualized according to the following conceptual frameworks, namely creative thinking, and teaching methods, which include the application of teaching strategies and the utilization of resources.

1.2.1 Creative thinking

The concept of creativity has many interpretations and definitions and could not possibly be covered fully in one study. Therefore, the researcher decided to make use of a widely accepted framework for creative thinking as described by Torrance (1977:15) in Figure 1.1.

Torrance's framework (1977:15) includes four tenets that constitute creativity or a creative act. The researcher argued the four tenets should characterize creative thinking in an academic context. In order to understand creative thinking, the relationships between all the under-mentioned tenets have to be considered. In the context of the study, creativity will refer to the creative act, and creative thinking specifically to the creative act in an academic context (*cf.* 2.4.4.2). In line with the view of Amabile (1999:52) (*cf.* 2.4) the "nurturing" of creative thinking will refer to the stimulation of the latent potential within each learner to utilize cognitive processes that would lead to original thinking.

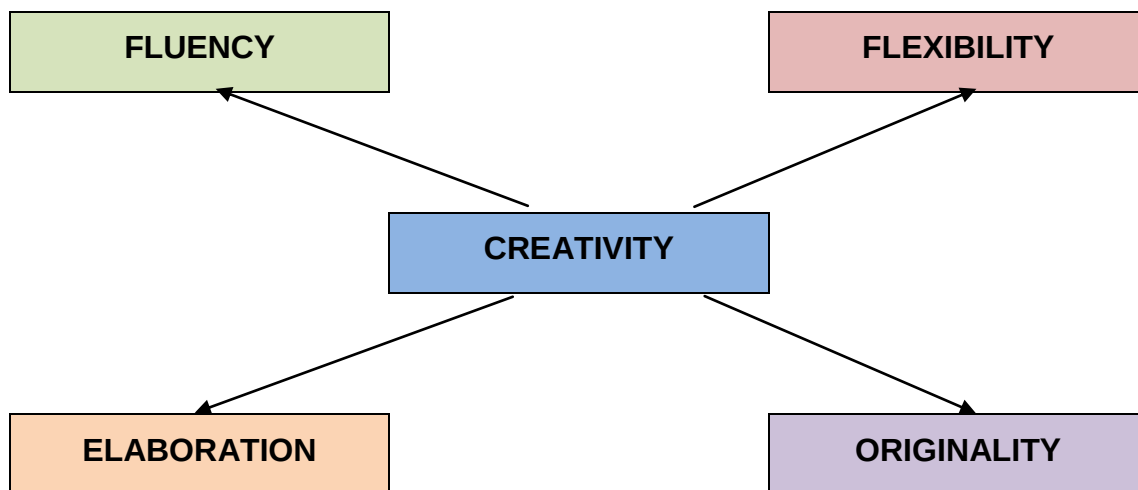


Figure 1.1: The concept of creative thinking

1.2.1.1 Fluency

Fluency refers to the generation of a large number of different solutions to a problem and ideas concerning that problem (Torrance, 1977:15). Fluency can therefore be understood in terms of understanding, which is in contrast to the mere recalling and remembering of knowledge that is learned.

With regard to the research, fluency of ideas among the learners was determined by the choice of teaching methods utilized by the teacher. It is assumed that a direct instructional method would not allow for fluency of ideas, as this method focuses on the recall of information and rote learning.

1.2.1.2 Flexibility

Flexibility implies that the creative person can generate ideas that have multiple possibilities or realms of thinking (Torrance, 1977:16). Flexibility therefore involves being able to see things from a variety of perspectives, as well as being able to use many different strategies and approaches.

Regarding the research to be done, flexibility will be evident if the teacher's teaching methods, specifically in the questions being posed, allow for learners to generate multiple possible solutions to a problem. The researcher argues that in a learning area such as the Social Sciences, this must be done to ensure that learners can evaluate and judge events and not be biased.

1.2.1.3 Elaboration

Elaboration refers to the notion that ideas can be enhanced by providing elaborate detail (Torrance, 1977:16). Any topic in question, therefore, can be made more interesting and can improve understanding if additional detail and clarity are provided.

Elaboration will be evident in the research if the teacher's chosen teaching methods allow for elaboration in the classroom. This can then be interpreted to provide elaboration by means of teaching resources, such as making use of resources such as maps, cartoons and photographs. All these resources elaborate on the topic being dealt with and enrich understanding. Elaboration will also be evident if learners can provide elaborate detail to the answers they provide when the teacher asks questions, or even in their examination and test papers.

1.2.1.4 Originality

Originality refers to any idea that is generated which is unusual, different or unique (Torrance, 1977:17). It is a process of synthesizing or gathering information about a topic in a novel way.

Originality will be evident in the classroom practices of teachers if their chosen teaching methods allow learners to synthesize information in their own unique way. The teacher should therefore allow learners freedom in the generation of unique ideas. Teachers should not force learners to learn in a predetermined fashion, for example answering test questions that match the answers from the textbook.

In the context of the research, the nurturing of the aforementioned tenets is linked to the nurturing of cognitive skills according to the Taxonomy of Bloom (1956:8) (*cf.* 2.3), as the nurturing of these cognitive skills encompass the development of fluency, originality, flexibility and elaboration.

In the context of the study nurturing creative thinking will refer to the purposeful creation of learning and teaching activities that would encourage learners to develop new information and ideas related to the learning content.

Within the research, this conceptual framework was utilized for compiling the questionnaire items and the interview schedule.

1.2.2 Teaching methods

In the context of the study, the researcher used the concept teaching methods as an overarching concept to encompass the teaching strategies as well as the resources used by the teacher during teaching and learning.

According to Arends (2009:25), for successful teaching to take place, a teacher must use a good method. A teacher has many choices when opting for a style to teach by. The teacher may use a transmission and reception teaching style, or can make use of a facilitation style. These two styles are further expanded by various teaching methods and their related strategies. Furthermore, the application of a teaching method cannot be separated from the use of appropriate resources to enhance the teaching (Ferreira, 2006:137).

Five main teaching methods and their related strategies can be identified, namely direct instruction, indirect instruction, independent study, interactive instruction and experiential learning (Merriam *et al.*, 2007:155¹; Gunter *et al.*, 2010:70-191) (*cf.* 3.3 – 3.7). The researcher argues that the teacher's choice of teaching method will influence the creative thinking of the learners being taught.

1.2.2.1 Direct instruction

Arends (2009:293-295), Gunter *et al.* (2010:69), Monyai (2006:107-109) and Tuovinen and Sweller (1999:334) state that direct instruction is a teacher-centred method. While often overused, it is an effective instructional strategy when the teacher's goal is to provide information, teach standard procedures and develop step-by-step skills. Direct instruction includes the use of strategies such as demonstrations, drill and practice and lecturing.

¹According to the new referencing style guide of the North-West University, *et al.* is used the first time when more than three authors are mentioned in the text.

1.2.2.2 Indirect instruction

According to Borich (2007:12), indirect instruction is a learner-centred teaching method. It promotes learner involvement in the learning process and in doing so, fosters true learning for understanding. Indirect teaching encompasses strategies such as case studies, problem solving and concept mapping.

1.2.2.3 Independent instruction

Borich (2007:17) also states that independent learning involves planned independent study by learners under the guidance or supervision of a classroom teacher. Independent instruction involves the use of the following strategies: essays, homework and research projects.

1.2.2.4 Interactive instruction

According to Sessoms (2008:86), interactive instruction provides opportunities for learners to interact with peers, experts and their teachers in such a manner as to improve their social skills as well as their abilities to assess information and structure an effective response to the information. The interaction is often highly motivating for learners. Interactive teaching takes places by utilizing strategies such as brainstorming, cooperative learning groups, debates and discussions.

1.2.2.5 Experiential learning

Experiential learning refers to learning through reflection on doing, which stands in contrast to rote learning (Merriam *et al.*, 2007:155).

In the context of the study, the researcher specifically looked for evidence of indirect, independent, interactive and experiential instruction, as these approaches to teaching provide opportunities to learners to provide creative and original inputs during teaching and learning. In order to provide experiential learning experiences, strategies such as field trips, role-plays and simulations can be employed.

1.2.2.6 Resources

Teaching resources or media are intrinsically linked with the application of teaching methods and strategies, as a teacher cannot effectively employ a

teaching method or strategy without making use of resources (Arends, 2009:25). Therefore, teaching resources will also be regarded as important for nurturing creative thinking.

The use of resources refers to traditional resources such as printed media such as textbooks or projected text (Kincheloe, 2001:12-16). In addition, resources also include the use of audio-visual media and information communication technology (Van Rooyen & Van der Merwe, 2008:254-256).

1.2.3 Social Sciences

The Social Sciences Learning Area is concerned with both what learners learn and how they learn and construct knowledge. History and Geography are presented in Social Sciences as separate, but linked disciplines, that study relationships between people, and between people and the environment.

In the following section, brief definitions of the concepts central to the study are provided.

1.3 DEFINITION OF CONCEPTS

Creative thinking

According to De Wit (2009:148-149), creative thinking is a mental process involving the discovery of new ideas or concepts, or new associations of the existing ideas or concepts, fuelled by the process of either conscious or unconscious insight.

Teaching methods

Teaching methods refer to particular instructional strategies or techniques that teachers use to help learners gain knowledge, which they need in order to achieve a desired learning outcome (Mahaye & Jacobs, 2008:175).

Resources

Resources *inter alia* refer to printed or audio-visual media and material that facilitates the construction of new knowledge during teaching and learning (Ferreira, 2006:137).

Social Sciences

The Social Sciences Learning Area studies relationships between people, and between people and the environment. These relationships vary over time and space. They are also influenced by social, political, economic and environmental contexts, and by people's values, attitudes and beliefs (Department of Education, 2003:5).

Based on the introduction and statement of the problem, this research wishes to formulate the following research questions.

1.4 RESEARCH QUESTIONS

The following central question guided the execution of the study:

To what extent do teachers nurture creative thinking in Grade 9 Social Sciences classrooms through the choice of teaching methods?

Within this central question, the following sub-questions arise:

- What does creative thinking in the Grade 9 Social Sciences classroom entail?
- Which teaching methods, strategies and resources are best suited to nurture creative thinking in Grade 9 Social Sciences classrooms?
- What are the learners' perceptions regarding the teachers' use of teaching methods, strategies and resources during the teaching of Grade 9 Social Sciences?
- How do teachers understand the nurturing of creative thinking in Grade 9 Social Sciences classrooms?
- What influence will biographical variables have on the learner responses regarding the nurturing of creative thinking in Grade 9 Social Sciences classrooms?

Flowing from the research questions, a main aim and related objectives were formulated.

1.5 AIM AND OBJECTIVES OF THE STUDY

The overall aim of this study was to determine the extent to which creative thinking is nurtured in the Grade 9 Social Sciences classrooms through the choice of teaching methods.

The main aim was operationalized as follows:

- determining what creative thinking in the Grade 9 Social Sciences classroom entails by means of a literature study;
- analysing which teaching methods, strategies and resources are best suited to nurture creative thinking in Grade 9 Social Sciences classrooms by means of a literature study;
- examining learner perceptions regarding the teachers' use of teaching methods, strategies and resources when teaching Grade 9 Social Sciences, by means of a questionnaire;
- gauging teachers' understanding regarding the nurturing of creative thinking in Grade 9 Social Sciences classrooms by means of an interview; and
- establishing the influence of biographical variables on the learner responses regarding the nurturing of creative thinking in the Grade 9 Social Sciences classroom.

A brief explanation of the empirical research design employed, follows in the next section.

1.6 EMPIRICAL RESEARCH

1.6.1 The literature study

A literature study was done before the research was carried out. Chapter 4 (*cf.* 4.3.1) of this study has a further explanation of which databases were used and which keywords were used to carry out the literature search.

1.6.2 Research framework

The research paradigm or worldview adopted by this particular research was Pragmatism (Creswell, 2009:6). The choice of this particular framework and other frameworks that exist are further explained in section 4.2.

1.6.3 Research design

A sequential explanatory mixed method research design was used in the study, which incorporated both quantitative and qualitative research (Creswell, 2009:14). The mixed method design is further explored in detail in section 4.3.3.

1.6.4 Research strategy

The research made use of the following research strategies for the quantitative and qualitative components of the research respectively:

- For the quantitative research, descriptive survey research was utilized (Leedy & Ormrod, 2005:108).
- For the qualitative research, phenomenological research was utilized (McMillan & Schumacher, 2006:26).

Both of these research strategies are further explained in detail in Chapter 4 (*cf.* 4.3.4).

1.6.5 Research participants

In the context of the study non-probability, purposeful and convenient sampling of Grade 9 Social Sciences learners ($n = 399$) and their respective teachers ($n = 6$) from the Sedibeng East (D7) District of the Gauteng Department of Education was utilized. The researcher elaborates on the sampling procedure in Chapter 4 (*cf.* 4.3.7).

1.7 METHODS OF DATA COLLECTION AND QUALITY CRITERIA

Due to the quantitative and qualitative nature of this study, different data collection instruments were used. The researcher elucidates on the quantitative data collection instrument, followed by the qualitative data collection instrument below.

1.7.1 Quantitative data collection instrument

A self-constructed questionnaire was used as the data collection instrument for the quantitative research (Leedy & Ormrod, 2005:185). The aim of this questionnaire was to determine the learners' perceptions of their Grade 9 Social Sciences teacher's use of teaching methods, strategies and resources

in the classroom. Chapter 4 of this study outlines a discussion pertaining to the construction of the questionnaire, with specific focus on the use of close-ended Likert scale questions (*cf.* 4.3.5.1).

1.7.1.1 Reliability of the questionnaire

To ensure reliability of the questionnaire, a range of measures were applied. These measures are:

- Translation of the questionnaire into Afrikaans in order to accommodate different language groups.
- Calculating Cronbach alpha coefficients in a pilot study to establish reliability of the questionnaire items (Revelle & Zinbarg, 2009:145).
- Inter-item correlations were determined in a pilot study to establish how well the various items in each of the questionnaire sections relate to one another, and whether they measure the construct in question (Revelle & Zinbarg, 2009:145).

All these measures that were carried out are further explained in Chapter 4(*cf.* 4.3.6.1).

1.7.1.2 Validity of the quantitative research design

The validity of the quantitative research design was ensured by adhering to criteria for internal, external, construct and statistical conclusion validity (McMillan & Schumacher, 2006:134-142). How the researcher complied with each of these aspects is clarified in Chapter 4 (*cf.* 4.3.6.1).

1.7.1.3 Validity of the questionnaire

The validity of the questionnaire itself was ensured by adhering to the various criteria for validity, namely face, content, criterion and construct validity (Leedy & Ormrod, 2005:92).

How the researcher adhered to the criteria for validity is explained in Chapter 4 (*cf.* 4.3.6.1).

1.7.2 Qualitative data collection method

The qualitative data collection instrument used was a semi-structured, one-to-one interview with Grade 9 teachers (McMillan & Schumacher, 2006:211).

Chapter 4 of this study further discusses the use of interviews for research purposes, specifically with regard to whether the interview should be closed or open-ended and whether it should be a one-on-one or group interview (*cf.* 4.3.5). How interviewing was used in the context of the research is clarified in section 4.3.5.

1.7.2.1 Rigour of the interview

According to Babbie and Mouton (2001:276), the rigour of the interview can be ensured by enhancing trustworthiness, which implies adhering to criteria for credibility, transferability, dependability and conformability.

How the researcher adhered to criteria for trustworthiness is elucidated upon within Chapter 4 of this study (*cf.* 4.3.6.2).

The role of the researcher as an instrument in the collection of qualitative data can also influence the rigour of the data collection process (Merriam, 2009:219). How the researcher considered his role during data collection is clarified in Chapter 4 (*cf.* 4.3.6.2).

The following section pays attention to the procedures used for analysing data.

1.8 DATA ANALYSIS

The data gathered were analysed in two separate ways, as the research comprised a qualitative and quantitative component. Statistical procedures were used for the analysis of the questionnaire responses and a content analysis was undertaken for the interview data.

1.8.1 Questionnaires

The data analysis of the questionnaire made use of both descriptive and inferential statistics (Leedy & Ormrod, 2005:257). The explanations of both of these statistical procedures are further explored in detail in Chapter 4 (*cf.* 4.3.8.1).

1.8.2 Interviews

The data analysis procedure for the interviews entailed both an inductive and a deductive content analysis (McMillan & Schumacher, 2006:368). The

explanations for these two qualitative data analysis procedures are discussed in further detail in Chapter 4 of this study (*cf.* 4.3.8.2).

The data obtained from the questionnaire were explained by the data collected from the interviews. The quantitative and qualitative data were integrated/combined to come to a clearer and deeper understanding of the nurturing of creative thinking in the Grade 9 Social Sciences classrooms that were part of the research.

The following figure, Figure 1.2, summarizes the research procedure followed by the researcher.

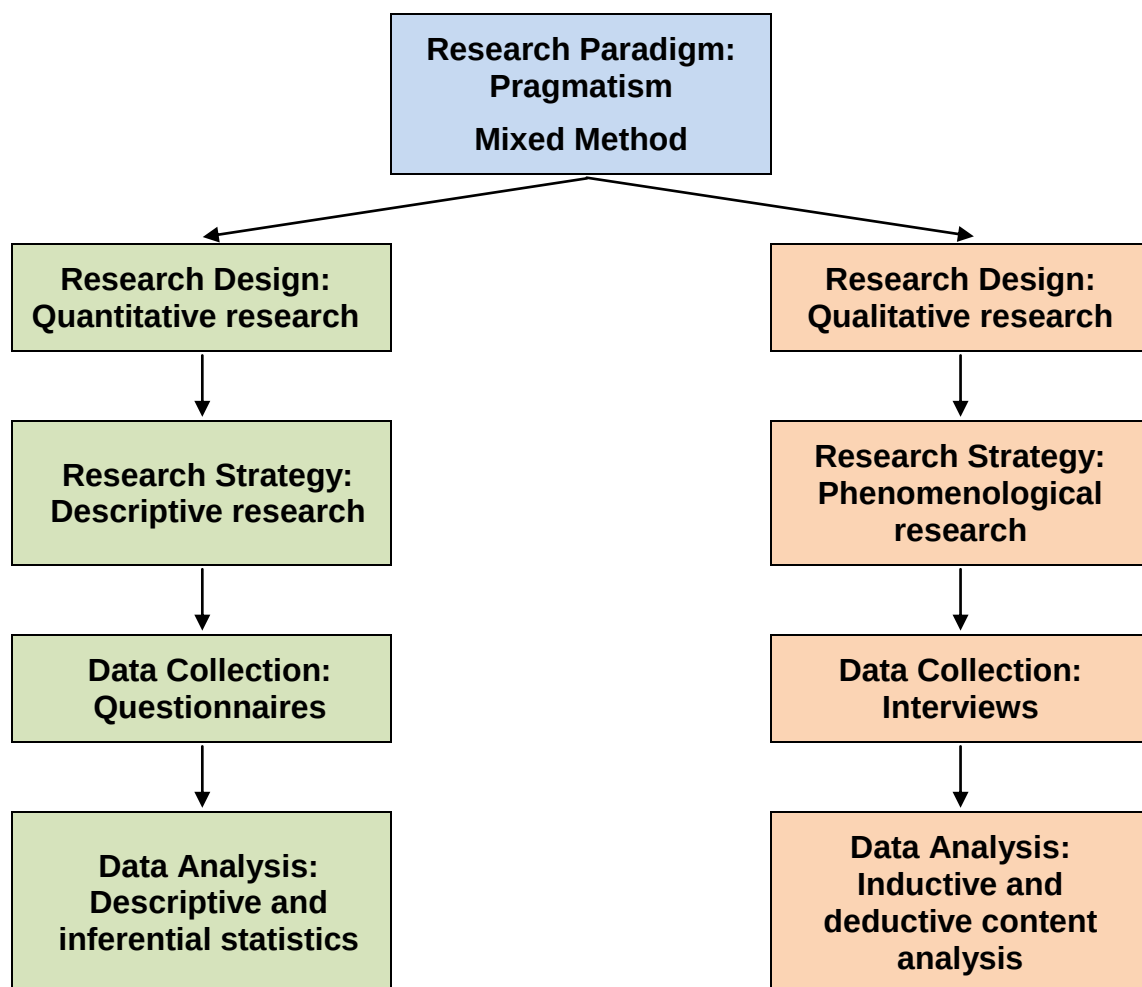


Figure 1.2: Research procedure

As the research entailed working with human beings, consideration had to be given to ethical aspects.

1.9 ETHICAL CONSIDERATIONS

All of the various ethical considerations pertaining to the research are discussed in detail in Chapter 4 (*cf.* 4.3.9). The various ethical considerations that the researcher adhered to were:

- Ethical issues in the research problem
- Ethical issues in the purpose and questions
- Ethical issues in data collection
- Ethical issues in data analysis and interpretation
- Ethical issues in writing and disseminating the research (Creswell, 2009:89)

The chronological execution of the research is highlighted below.

1.10 RESEARCH PROCEDURE

The research procedure comprised the following steps:

Step 1: Identification and motivation of the research problem from the literature

Step 2: Formulation of problem statement and research questions

Step 3: Review of relevant literature pertaining to the study

Step 4: Deciding on the empirical research design

Step 5: Obtaining ethical clearance

Step 6: Sampling of research participants

Step 7: Obtaining informed consent: authorities and participants

Step 8: Construction of data collection instruments based on the literature review

Step 9: Administering the questionnaires

Step 10: Data analysis and interpretation of questionnaires

Step 11: Conducting the interviews and compiling verbatim transcripts

Step 12: Data analysis and interpretation of interviews

Step 13: Combining quantitative and qualitative data

Step 14: Discussion of findings, conclusions and recommendations

1.11 PRELIMINARY CHAPTER DIVISION

The study unfolded according to the following structure:

Chapter 1: Introduction and motivation of the problem

Chapter 2: Creative thinking in the Social Sciences classroom

Chapter 3: Nurturing creative thinking in the Social Sciences through the choice of teaching methods

Chapter 4: Empirical research design

Chapter 5: Data analysis and interpretation

Chapter 6: Summary, findings and conclusions

1.12 CHAPTER SUMMARY

This chapter began with an in depth discussion on the current issue of the subjects History and Geography and their apparent lack of value for learners in the school system (*cf.* 1.1). This lack of value was scrutinized from an international as well as a national perspective, in which concurrency was found between the two perspectives.

From a national perspective, it was noted that in the critical cross-field outcomes, it is required of learners to think both critically and creatively (*cf.* 1.1). The focus of the research deals with creative thinking; therefore, a number of research studies were consulted to verify the topic of creative thinking in Social Sciences classrooms. It was found that this topic has not received enough attention on a national level and that internationally the topic was being researched in general from either a purely qualitative or a quantitative approach (*cf.* 1.1). Therefore, a gap in terms of specific research linked to a subject field as well as a mixed method approach to research on the topic was identified.

The conceptual frameworks on which the study is based included the four facets of creativity, namely fluency (*cf.* 1.2.1.1) which is the generation of ideas, flexibility (*cf.* 1.2.1.2) which is the ability to see things from multiple

perspectives, elaboration (*cf.* 1.2.1.3) which is providing more elaborate detail and originality (*cf.* 1.2.1.4) which refers to any idea that is novel or unique.

The other part of the conceptual framework dealt with particular teaching methods and strategies, namely direct instruction (*cf.* 1.2.2.1) which is a teacher-centred method, indirect instruction (*cf.* 1.2.2.2) which is a learner-centred method, independent instruction (*cf.* 1.2.2.3) which is also a learner-centred method and interactive instruction (*cf.* 1.2.2.4) and experiential learning (*cf.* 1.2.2.5) which is again learner-centred. Brief definitions of the concepts of creativity, teaching methods and Social Sciences were also looked at in the following section (*cf.* 1.3).

The major aim and objectives of the study were addressed next, which entails determining to what extent creative thinking is being nurtured in the Grade 9 Social Sciences classroom through the choice of teaching methods (*cf.* 1.4).

Following the aim and objectives, the empirical research design was discussed briefly (*cf.* 1.5). In particular, the literature study was looked at (*cf.* 1.5.1), the research paradigm or framework (*cf.* 1.5.2) for this particular research was identified as Pragmatism. The research design (*cf.* 1.5.3) was identified as a sequential explanatory mixed method design, with descriptive survey and phenomenological research as research strategies (*cf.* 1.5.4). Lastly, the research participants and sampling (*cf.* 1.5.5) were also addressed, involving non-probability, purposeful and convenient sampling.

The following section dealt with the methods of data collection and quality criteria (*cf.* 1.6). The quantitative data collection instrument was identified as a self-constructed questionnaire with close-ended Likert scale questions (*cf.* 1.6.1).

The reliability of the above-mentioned questionnaire was also scrutinized, in which a variety of measures were applied to ensure reliability (*cf.* 1.6.2). The questionnaire was subjected to criteria for validity (*cf.* 1.6.3), including face, content, criterion and construct validity. Furthermore, the validity of the research design was looked at in terms of how the design adheres to criteria for internal, external, construct and statistical conclusion validity.

The next section pertained to the qualitative data collection instrument, identified as a semi-structured, one-to-one interview (*cf.* 1.6.4). The rigour of the interview was ensured by adhering to the criteria for credibility, transferability, dependability and conformability (*cf.* 1.6.5).

The data analysis procedures were discussed in the following section (*cf.* 1.7). Due to the fact that the research involves both quantitative and qualitative components, the analysis procedures were discussed separately. The data analysis of the questionnaire involved the use of both descriptive and inferential statistics (*cf.* 1.7.1). The data analysis of the interviews entailed an inductive and deductive content analysis (*cf.* 1.7.2). Once both sets of data had been analysed, they were combined to come to a clearer and deeper understanding regarding the nurturing of creative thinking in the Social Sciences classroom.

The ethical procedures and considerations were addressed in the next section (*cf.* 1.8). The chronological execution of the research followed the above-mentioned discussion (*cf.* 1.9). The chapter concluded with the preliminary chapter division (*cf.* 1.10).

The following chapter, Chapter 2, pertains to the literature studied regarding creative thinking within the Social Sciences classroom.

CHAPTER 2

CREATIVE THINKING IN THE SOCIAL SCIENCES CLASSROOM

2.1 INTRODUCTION

The nurturing of creative thinking is of vital importance in education and is one of the Critical Cross-Field Outcomes in the National Curriculum Statement (NCS). These Critical Cross-Field Outcomes focus on skills development, including being able to think critically and creatively, to collect information, to organize information, to analyse information, to solve problems, working in groups as well as independently, effective communication and responsible decision-making (Department of Education, 2003:6).

The main objective of this chapter is to provide a description of what creativity entails and how the nurturing of creative thinking skills applies to teaching Grade 9 Social Sciences. The literature review focuses on the following issues:

- Creativity research: a historical developmental perspective
- Cognition and creative thinking
- Creativity: a concept clarification
- The four p's of creativity: person, place, product and process
- Barriers to creative thinking
- The importance of nurturing creative thinking among learners
- Nurturing creative thinking in the Social Sciences classroom

In order to expand on the topic of creative thinking, it is necessary to look at the development of creativity research throughout history in order to understand the work of pioneers in this particular field.

2.2 CREATIVITY RESEARCH: A HISTORICAL DEVELOPMENTAL PERSPECTIVE

According to Ryhammar and Brolin (1999:259), leading mathematicians and scientists in the late 19th and early 20th centuries, such as Hermann von Helmholtz (1878:698) and Henri Poincaré (1908:12), began to discuss and reflect publicly on their creative processes. The insights of the aforementioned mathematicians and scientists were built on by early accounts of the creative process by ground-breaking theorists such as Graham Wallas (1926:42) and Max Wertheimer (1959:252).

However, the official starting point to the scientific study of creativity, from the perspective of conventional psychological literature, is generally considered to have been J.P. Guilford's 1950 address to the American Psychological Association, which helped popularize the topic and centre attention on a scientific approach to conceptualizing creativity and quantifying it psychometrically (Ryhammar & Brolin, 1999:259).

In conjunction with these developments, other researchers have taken a more pragmatic approach, teaching practical creativity methods. Three of the best-known are:

2.2.1 Alex Osborn's "*brainstorming*" (1950s to present)

Brainstorming is a group creativity technique designed to generate a large number of ideas for the solution of a problem (Monyai, 2006:120-121). Groups essentially could double their creative output with brainstorming.

2.2.2 Genrikh Altshuller's Theory of Inventive Problem Solving (TRIZ, 1950s to present)

The Theory of Inventive Problem Solving is "*a problem solving, analysis and forecasting tool derived from the study of patterns of invention in the global patent literature*" (Hua *et al.*, 2006:111). It was developed by the Soviet inventor and science fiction author Genrich Altshuller and his colleagues, beginning in 1946 (Sheng & Kok-Soo, 2010:852).

Following Altshuller's understanding, TRIZ developed on a basis of extensive research covering hundreds of thousands of inventions across many different

fields to create a theory, which outlines generalizable patterns in the nature of inventive solutions and the distinctive characteristics of the problems that these inventions have overcome (Sheng & Kok-Soo, 2010:852).

2.2.3 Edward de Bono's "*lateral thinking*" (1960s to present)

The term lateral thinking, coined by Edward de Bono (De Bono, 1970:300), implies solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic.

According to Mumford (2003:109), for many years a lack of multiple alternative theoretical perspectives existed. Early learners of creativity often took what might be referred to as a "*magic bullet*" approach, proposing one simple, all-encompassing mechanism to account for creative thought. Thus creativity was seen as blind variation, divergent thinking, motivation and so forth (Mumford, 2003:109). Creativity is, however, a complex phenomenon involving the operation of multiple influences as we move from the initial generation of an idea to the delivery of an innovative new product (Mumford, 2003:109).

In summary, the researcher concludes that the historical perspective of creativity seems to regard **problem solving** and **reasoning** as essential processes involved in creative thinking.

Creative thinking occupies an important place in the cognition of an individual. In order to expand on the issue of nurturing creative thinking in the Social Sciences, the concept cognition needs to be explored in order to place creative thinking within this context.

2.3 COGNITION AND CREATIVE THINKING

According to Feuerstein *et al.* (2010:2-3), Kozulin (2003:31-38), Matlin (2002:2) and Pintrich and Schunk (2002:225), **cognition** is the scientific term for "*the process of thought*" to knowing. Usage of the term varies in different disciplines; for example in psychology and cognitive science, it usually refers to an information processing view that involves the acquisition, storage, transformation and use of knowledge (Dembo & Seli, 2004:2; Matlin, 2002:2).

Other interpretations of the meaning of cognition link it to the development of concepts; individual minds, groups, and organizations; the psychological result of perception and learning and reasoning (Piaget, 1981:17).

With reference to the figure below, Figure 2.2, the researcher's view of the cognitive processes associated with cognition will be elaborated upon further in detail.

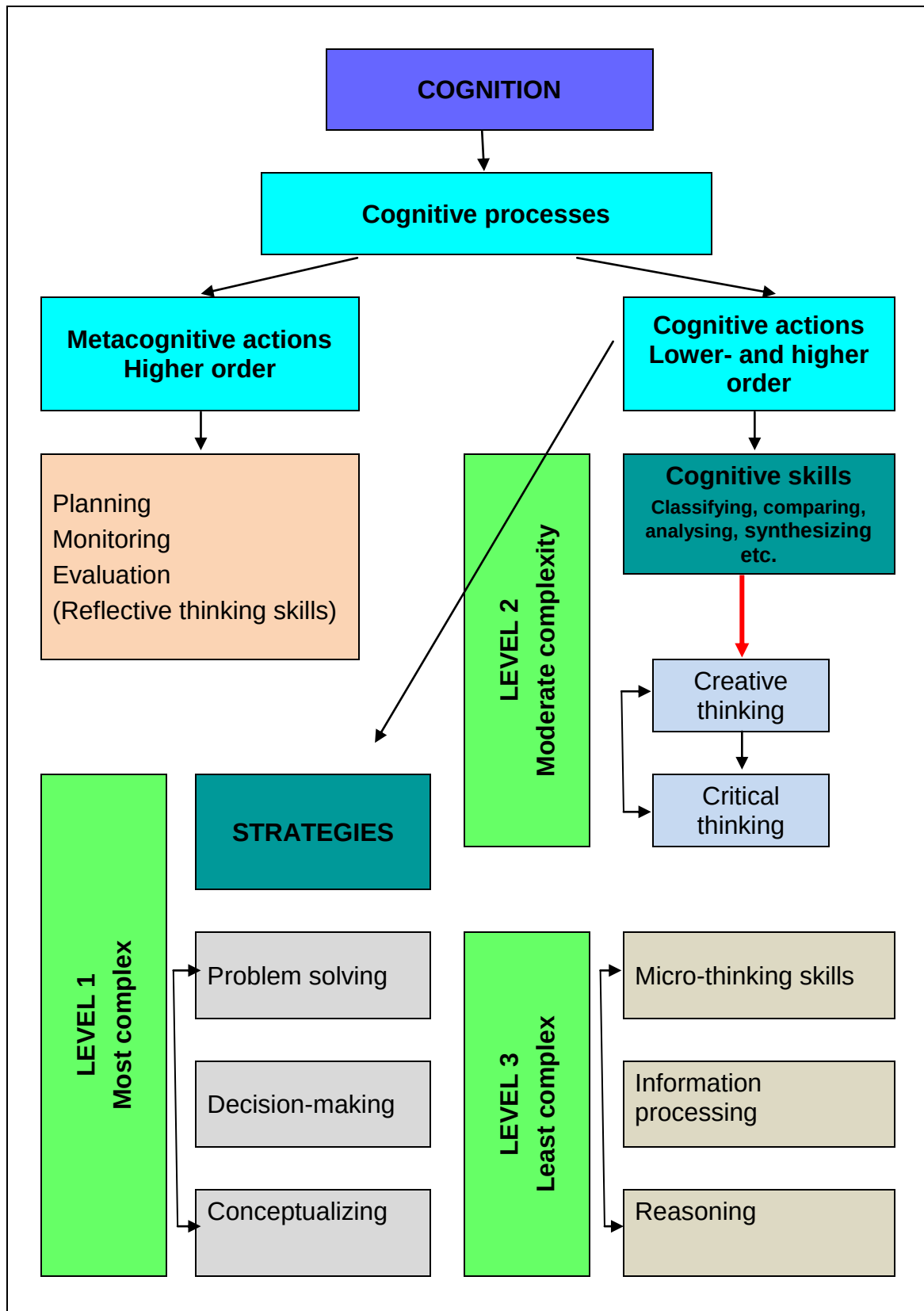


Figure 2.1: Cognition

Cognition involves two distinct types of actions, including **metacognitive** and **cognitive** actions. According to Dunlosky and Bjork (2008:30, 31), Johnson (2011:129), Koenig (2010:33-38) and Pintrich and Schunk (2002:225), **metacognition** is defined as "*cognition about cognition*", or "*knowing about knowing*." Metacognition can take many forms; "*it includes knowledge about when and where to use particular strategies for learning or for problem solving*." "*Metamemory, individuals' knowledge about memory, is an especially important form of metacognition*."

Metacognition thus refers to a stage of thinking that involves active control over the own procedure of thinking that is used in learning situations. Metacognitive actions include **planning** the way to approach a learning task, **monitoring** comprehension and **evaluating** the progress towards the completion of a task (Dunlosky & Bjork, 2008:56; Johnson, 2011:129; Koenig, 2010:33-38; Pintrich & Schunk, 2002:225). Similarly, maintaining motivation to see a task to completion is also a metacognitive skill. The ability to become aware of distracting stimuli – both internal and external – and sustain effort over time also involves metacognitive or executive functions (Johnson, 2011:129; Koenig, 2010:33-38; Pintrich & Schunk, 2002:225).

The theory that metacognition has a crucial role to play in successful learning means it is significant that it be demonstrated by both learners and teachers. Learners who demonstrate a wide range of metacognitive skills perform better in exams and complete work more competently (Johnson, 2011:129; Koenig, 2010:33-38; Pintrich & Schunk, 2002:225). These learners are self-regulated learners who utilize the "*right tool for the job*" and modify learning strategies and skills based on their consciousness of effectiveness. Individuals with a high level of metacognitive knowledge and skill identify barriers to learning as early as possible and change "*tools*" or strategies to ensure goal attainment (Dunlosky & Bjork, 2008:56). The researcher argues that the aforementioned implies, to a certain extent, the possession of creative abilities, as the evaluation, selection and modification of suitable strategies imply some form of creative thinking.

Metacognologists are conscious of their own strengths and weaknesses in terms of skills to complete a task. To complete a task, a broader range of

"tools" also assists in goal achievement. Metacognologists use "tools" that are general, generic and context independent, as these tools are more likely to be functional in different types of learning situations (Dunlosky & Bjork, 2008:56).

The second important component of cognition involves cognitive actions. **Cognitive actions** can be subdivided into three levels. Level one contains complex and difficult strategies, which involve problem solving, decision-making and conceptualizing.

According to Lin *et al.* (2005:245), Monyai (2006:114-118) and Morrison *et al.* (2011:312), **problem solving** is a mental course of action and is part of the greater problem process that includes problem finding and problem-shaping. Considered the most intricate of all intellectual functions, problem solving has been defined as a higher-order cognitive process that requires the modulation and control of more routine or basic skills (Lin *et al.*, 2005:245; Monyai, 2006:114-118; Morrison *et al.*, 2011:312).

Decision-making is driven by mental processes (cognitive process) leading to the selection of a course of action among numerous alternatives. According to Reason (1990:8), every decision-making process results in a final choice, which can be an action or an opinion of choice (Epstein, 2006:351; Kahneman & Tversky, 2000:50; Matlin, 2002:493).

Conceptualization can be seen as the learning of concepts where concepts refer to the tools of thought (Lipman, 2003:181). According to Margolis and Laurence (2007:16), a **concept** is a cognitive unit of meaning; an intangible idea or a mental symbol sometimes defined as a "*unit of knowledge*," built from other units, which operate as a concept's characteristics. There are two prevailing theories in modern philosophy, which attempt to explain the nature of conceptualization. The representational theory suggests that conceptualization involves mental representations, while the semantic theory of concepts holds that they are abstract items (Margolis & Laurence, 2007:51). Ideas are regarded to be concepts, although abstract concepts do not necessarily appear to the mind as images as some ideas do (Audi, 2001:10).

The cognitive actions at level two involve the application of cognitive skills, as well as creative and critical thinking skills. This research will thus focus on creative thinking as a cognitive skill.

According to Amabile (1996:2) and Sternberg (2000:31), **creative thinking** is the process of generating original or new thoughts, designs, or products; as such, it is very similar to the process of "***synthesis***", which is defined as a combination of two or more entities or ideas that together form something new (Bloom, 1956:8). Creative thinking, then, is divergent thinking or functioning at the edge of one's capability. When a person thinks "*creatively*," he/she functions relatively closely to the kinds of thinking processes used in problem solving (Amabile, 1996:2). As this specific cognitive skill is the focus of the study, a further detailed concept clarification is given in section 2.4 of this literature review.

Critical thinking involves determining the meaning and importance of what is observed or expressed, or, concerning a given inference or argument, determining whether there is sufficient justification to accept the conclusion as true (Epstein, 2006:5; Moore & Parker, 2004:23). Hence, Facione (2009:2-3), Barnes (2005:5-13), Bataineh and Zghoul (2006:33-50), Halx and Reybold (2005:293-315) and Seng and Kong (2006:54) define critical thinking as skilled, active interpretation and evaluation of observations, communications, information, and argumentation. Moore and Parker (2004:23) define critical thinking more naturally as the careful, purposeful determination of whether one should accept, reject or defer judgment about a claim and the degree of confidence with which one accepts or rejects it.

Critical thinking gives due deliberation to the evidence, the context of judgment, the relevant criteria for making the decision successfully, the applicable strategies or techniques for forming the judgment, and the applicable theoretical constructs for comprehending the problem and the question at hand (Moore & Parker, 2004:23). Critical thinking employs not only logic, but also expansive intellectual criteria such as clarity, credibility, accuracy, precision, relevance, depth, breadth, significance and fairness (Moore & Parker, 2004:23). It is also closely linked to the cognitive skill of analysis, which is defined as the process of breaking a complex topic or

substance into smaller parts to gain a better understanding of it (Barnes, 2005:5-13; Bataineh & Zghoul, 2006:33-50; Facione, 2009:2-3; Halx & Reybold, 2005:293-315; Seng& Kong, 2006:54-56). As critical and creative thinking involve divergent and lateral thinking, these concepts will now be explored.

According to Guilford, **divergent** or "*synthetic thinking*" is the capacity to draw on ideas from across disciplines and fields of investigation to reach a deeper understanding of the world and one's place in it (Guilford, 1958:14). There is a faction in education, which maintains that divergent thinking may create learners that are more resourceful. Rather than presenting a sequence of problems for rote memorization or resolution, divergent thinking presents open-ended problems and reinforces learners to develop their own solutions to problems. According to Guilford (1966:186), divergent production is the creative production of numerous answers to a set problem.

Students of creativity continue to debate whether divergent thinking is fully necessary and sufficient for creative thought (Scott *et al.*, 2004:363). Nonetheless, evidence accrued over the last 50 years does suggest that divergent thinking, as assessed through open-ended tests where responses are scored for fluency (number of responses), flexibility (category shifts in responses), originality (uniqueness) and elaboration (refinement of responses), does represent a distinct capacity contributing to both creative problem solving and many forms of creative performance (Scott *et al.*, 2004:364).

According to De Bono (1970:300), **lateral thinking** refers to solving problems through an indirect and creative approach. Lateral thinking is about reasoning that is not instantly apparent and about ideas that may not be accessible by using only conventional systematic logic.

In addition to being divergent and lateral in nature, critical thinking is primarily concerned with evaluating the true value of statements and looking for errors (Barnes, 2005:5-13; Bataineh & Zghoul, 2006:33-50; Facione, 2009:2-3; Halx & Reybold, 2005:293-315; Seng& Kong, 2006:51-54). Lateral thinking is more concerned with the movement value of statements and ideas (De Bono,

1970:300). A person would use lateral thinking when they want to move from one known idea to generating new ideas. Edward de Bono (1970:300) defines four types of thinking tools within the context of lateral thinking:

- Idea-generating tools that are intended to break current thinking patterns—routine patterns, the status quo
- Focus tools that are designed to expand where to look for new ideas
- Harvest tools that are designed to make sure more value is obtained from idea-generating production
- Treatment tools that are designed to consider real-world barriers, resources and support

The literature review includes a detailed explanation of one of the above-mentioned tools, namely the idea-generating tool, as defined by De Bono (1985:12). This specific tool is De Bono's Six Thinking Hats method, which is further elaborated upon in Chapter 3 of the study (*cf.* 3.8.15).

The cognitive actions at level three involve the least complex cognitive skills, those of micro-thinking strategies, information processing and reasoning.

Information processing theorizes that, like the computer, the human mind is a system that processes information through the application of logical rules and strategies (Santrock, 2008:44). Like the computer, the mind has a restricted capacity for the amount and nature of the information it can process.

According to Santrock (2008:45), just as the computer can be made into a better information processor by changing its hardware (e.g. circuit boards and microchips) and its software (programming), so too can children become more sophisticated thinkers through changes in their brains and sensory systems (hardware) and in the rules and strategies (software) that they learn.

According to Feuerstein *et al.* (2010:2-3) and Moseley *et al.* (2005:158), **reasoning** is the cognitive process of searching for reasons, beliefs, conclusions, actions or feelings. The main separation between forms of reasoning that is made in philosophy is between deductive reasoning and inductive reasoning (Monyai, 2006:106). Formal logic has been described as 'the science of deduction' (Kompridis, 2010:271). The study of inductive

reasoning is generally carried out within the field known as informal logic or critical thinking (Feuerstein *et al.*, 2010:2-3; Kompridis, 2010:271).

The micro-strategies are used to process information within the macro-strategies (problem solving, decision-making, conceptualizing) and, according to the researcher, can be generally connected with a cognitive taxonomy or learning hierarchy. One such cognitive taxonomy, Bloom's revised Taxonomy, is further explained below.

With reference to Bloom's Taxonomy, (*cf.* Figure 2.2) the higher-order thinking skill of synthesis and evaluation represents creative thinking (Bloom, 1956:8). Anderson and Krathwohl (2001:13) indicate that in the revised Taxonomy of Bloom, the highest two levels were swapped around. It therefore meant that in terms of cognitive complexity, creative thinking was moved higher than the previously highest form of thinking, which was evaluation. This revision bears importance for this study, as creativity could therefore be argued as being the highest and most complex form of thinking, which needs to be nurtured.

Furthermore, according to the researcher, in order for creative thinking to be nurtured effectively, it is required of teachers to ask questions in their tests and assignments that require the application of this particular type of cognitive skill, as well as stimulate this type of thinking in their actual teaching by means of appropriate teaching methods. The application of higher-order questioning and the use of teaching methods that stimulate higher-order thinking were assessed in the questionnaire as well as in the interviews.

The following figure, Figure 2.2 displays the various levels of cognitive complexity in Bloom's revised Taxonomy.

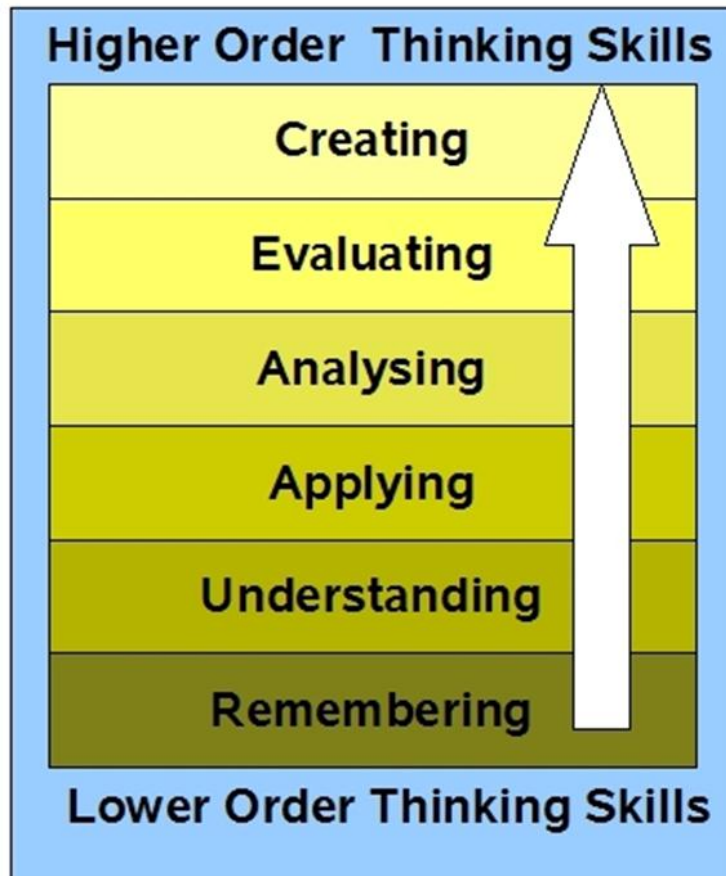


Figure 2.2: Bloom's revised Taxonomy

In order to make a comparison with Figure 2.2 possible, the following figure, Figure 2.3 displays the various levels of cognitive difficulty according to the older Taxonomy of Bloom (1956:8), with verbs associated with the specific cognitive levels.

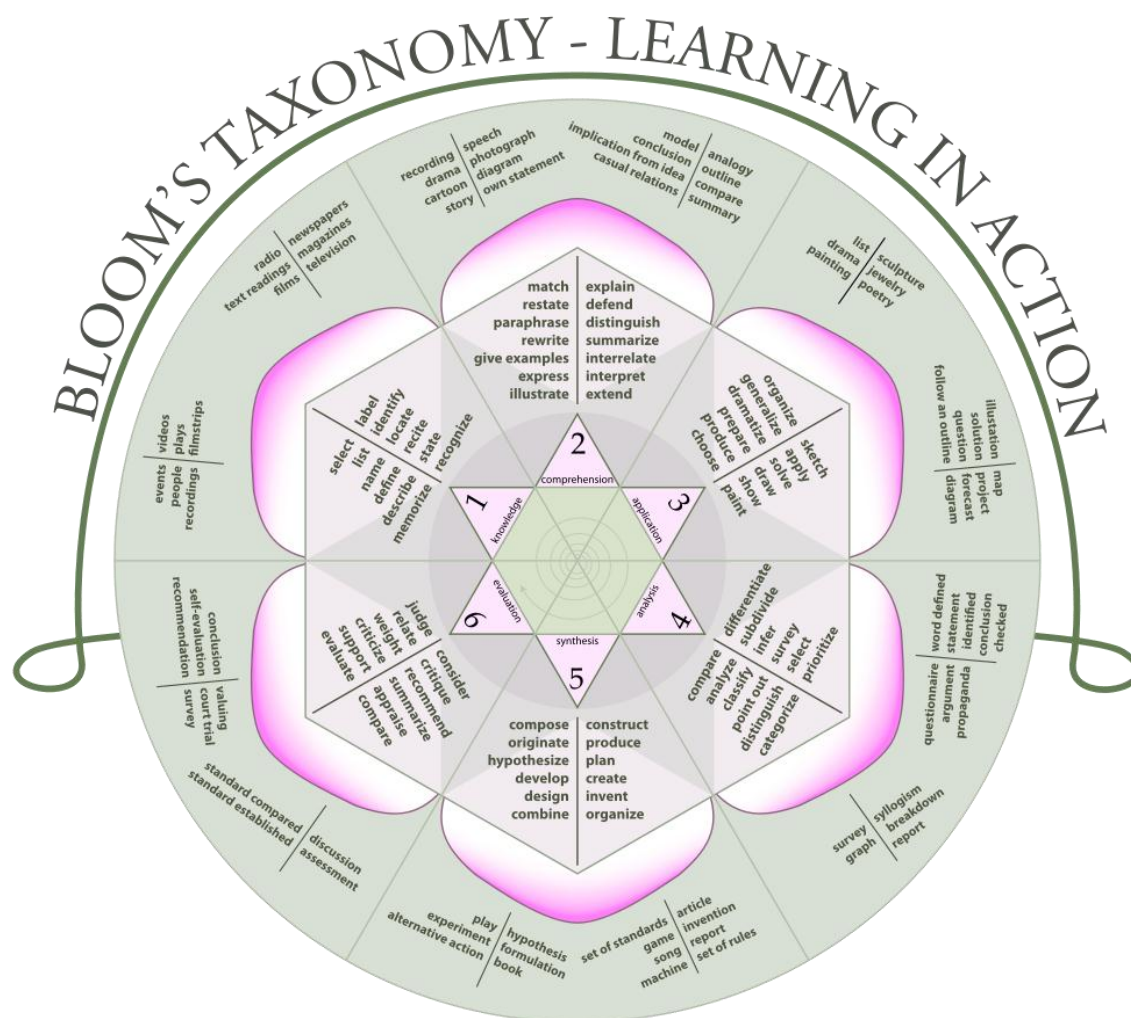


Figure 2.3: Bloom's Taxonomy for Thinking: Bloom's rose

The above figure, Figure 2.3, highlights Bloom's Taxonomy for Thinking, representing the old taxonomy. In the centre, the figure indicates numbers ranging from 1 to 6, with each number representing a specific thinking skill which ranges from low cognitive ability to high cognitive ability (Bloom, 1956:8). The lower-order skills begin at the knowledge level and include the comprehension level. The higher-level skills begin with the application level, the analysis level, the synthesis level and the evaluation level. Relating Bloom's Taxonomy with creative thinking ability, which is the focus of this research, the researcher argues that creativity can be linked to the synthesis level, making it clear that creative thinking is a higher-order cognitive ability (Bloom, 1956:8). In interpreting the data, the researcher makes reference specifically to the old taxonomy as it reflects the skill of synthesis which is an important skill in the context of creative thinking.

The researcher is of the opinion that the use of Bloom's Taxonomy can be further linked to the nurturing of creative thinking in the sense that proper, explicit application of the taxonomy by teachers can lead to the development of creative fluency, i.e. the generation of ideas. This will be evident when learners begin to think on the different cognitive levels and generate specific ideas at those levels. With reference to Figure 2.3, it is noted that specific verbs are attached to specific cognitive levels. These verbs represent the manner in which learners need to generate specific ideas (Bloom, 1956:9). On the knowledge level, definitions, labels and descriptions of ideas are generated. When moving to the comprehension level, explanations, summaries and expressions of ideas are generated. On the third level of application, generalizations and organizations of ideas are formed. Moving to the fourth level of analysis (critical thinking), comparisons, distinctions, deductions and inferences of ideas are formed. The fifth level of synthesis (creative thinking) involves hypotheses generation, designs, plans, inventions and solutions, which links directly with creative thinking. The final sixth level of evaluation involves the judgment of ideas and opinions (Bloom, 1956:9).

In order to promote the skill to synthesize which, according to the researcher, is required for the nurturing of creative thinking, the researcher argues that the basic skills such as knowledge, comprehension, application and analysis also need to be addressed in the classroom (Orlich *et al.*, 2004:20). The reason for this statement is that synthesizing requires the application of a number of other skills as well. An example of this would be in solving problems, which is considered a creative skill. One cannot come to a solution without first knowing or identifying the problem (knowledge level) and understanding the problem (comprehension level). The practical application of Bloom's Taxonomy within the Social Sciences classroom can be carried out through the use of a variety of teaching strategies, some strategies being more effective than others. This will be elucidated upon in Chapter Three (*cf.* 3.8).

By means of a final remark, the researcher wishes to acknowledge that emotional aspects such as *inter alia* attitudes, habit of mind, motivation and self-concept (Costa, 2009:15-42) play an important role in cognition and the effective execution of cognitive processes (*cf.* 2.6.8). As the focus of this

study was mainly on creative thinking as a cognitive skill, emotional aspects were not included as part of the literature review on cognition.

As creative thinking is the central concept on which this study focuses, the next section will deal with creativity in general and will specifically focus on clarifying the concept further.

2.4 CREATIVITY: A CONCEPT CLARIFICATION

According to Pink (2005:23), creativity is a process which involves the collection of new concepts and ideas, and also how these new associations stimulate the creative mind and link between previous concepts and ideas. Creativity is stimulated by the process which can be categorized as either being conscious or unconscious insight. Pink (2005:23) asserts that there is, however, a misconception that creativity is just the process of creating something new. In this regard, Amabile (1999:52) indicates that one must truly understand the essence of creativity before creating assumptions. Creativity should therefore not be confused with talent, and not only be associated with a certain amount of people or people of various cognitive abilities and skills. Everyone, according to Amabile (1999:52), therefore has the potential to be creative. The key component to stimulate creativity is motivation or the inner spark, as mentioned by Amabile (1996:14). In addition, as Amabile (1996:14) states, *“talent, personality and skill tell us what a child can do; motivation tells us what that child will do.”*

Craft (2005:20) suggests that a distinction can be made between *“high”* creativity and *“little”* creativity. High creativity is seen as something new and remarkable, which has transformed something in a significant way. By contrast, little creativity is seen as the ordinary but entire attitude toward life. It focuses on acting effectively with flexibility, intelligence and novelty in the everyday. Craft (2005:21) also mentions that many different interpretations of creativity exist, including those, which focus on the locus (person), some emphasize the product (idea) and others emphasize the impact (global or local). However, all these interpretations have a consensus that creativity involves the generation of novel ideas (Craft, 2005:22).

Nolan (2004:1) has suggested another important distinguishing factor. He distinguishes between creative thinking, creative behaviour and creative action. **Creative thinking** is the generation of new ideas and concepts, whereas **creative behaviour** involves relevant behavioural characteristics, which facilitate the creative process. **Creative action** is the physical action of doing new things, such as doing things for the first time and doing things, which are new to the world (Nolan, 2004:1). The research study will be focusing on creative thinking, specifically on how it can be nurtured. The researcher acknowledges the importance of both creative behaviour and creative action, but these elements will not be addressed in the study.

To understand creativity as a concept, a discussion on the theories of pioneers of the field of creativity research is needed. The field of creativity as it exists today emerged largely as a result of the pioneering efforts of J.P. Guilford (1966:186) and E.P. Torrance (1977:14). Both men had many more agreements than disagreements about the nature of creativity and the ways to measure it. Both were psychometric theorists and attempted to measure creativity from a psychometric standpoint. Both concentrated on divergent thinking as the basis for creativity and devised tests that emphasised the assessment of divergent thinking (Sternberg, 2006:87).

There are a number of different approaches regarding the understanding of creativity. Torrance preferred a psychometric approach (creativity can be measured), whereas Sternberg and his colleagues have chosen to use a confluence approach (Sternberg, 2006:87). The investment theory of creativity is a confluence theory according to which creative people are those who are willing and able to “*buy low and sell high*” in the realm of ideas. Buying low means, pursuing ideas that are unknown or out of favour, but that have growth potential. Often, when these ideas are first presented, they encounter resistance. The creative individual persists in the face of this resistance and eventually sells high, moving on to the next new or unpopular idea (Sternberg, 2006:88).

With regard to the above-mentioned discussion, the researcher supports a confluence approach. Even though the core of the study is related to Torrance’s views on creativity (*cf.* 2.4.3.2), which were also psychometric, the

research also supports the confluence approach. This confluence approach allows for the generation of new ideas, which links with creative fluency.

There are four specific key concepts that are linked to creativity. One of these key concepts with regard to creativity is **innovation**, which could be seen as the implementation of new ideas to create something of value. Craft (2005:20) asserts that an innovation could be seen as a revolutionary idea being launched on the market for the first time. **Novelty** is another key concept of creativity, which is the quality of being new, novel, striking, original or unusual (Liu, 2000:261). **Originality** is also a key concept of creativity, which is seen as the aspect of created or invented works as being new or novel, and thus can be distinguished from reproductions, clones, forgeries or derivative works (MacFarlane, 2007:18). An original work is one not received from others nor one copied, based on the work of others (MacFarlane, 2007:18; Runco & Charles, 1993:537). **Imagination** is the sense of imagining or of creating mental images or concepts of what is not actually present to the senses, and the process of forming such images or concepts (Byrne, 2005:17). It helps provide meaning to experience and understanding to knowledge and it is an essential facility through which people make sense of the world. It also plays a key role in the learning process (Byrne, 2005:17).

For the purposes of this research, creative thinking was conceptualized according to the idea that it should stimulate both lateral and divergent thinking and that it allows for the generation of new ideas. To be creative in one's thinking allows for the stimulation of thinking, through scrutiny and synthesis of information, and selecting relevant pieces of information (evaluation) with which to approach information creatively (Bloom, 1956:8). According to the researcher, another factor to be accounted for will be the idea of innovation and novelty, which are incorporated into the creative element of originality.

In order to understand creative thinking clearly, one needs to understand where and how this phenomenon can emerge in people. There are various views on the derivation of creativity and the next section will deal with this topic.

2.4.1 The origins of creativity

Henry (1991:12) and Pfenninger and Shubik (2001:15) have identified diverse perspectives on the derivation of creativity. These perspectives involve five specific sources as discussed below.

The first perspective on the origin of creativity is that it comes from **grace**. This is the perspective that creativity comes through divine insight, it is something that comes to us, or not, something special which is out of our power; it is this view that believes “*you either have it or you don’t*” (Henry, 1991:12; Pfenninger & Shubik, 2001:15).

The second perspective on the origin of creativity is that it comes about by **accident**. Creativity arises by unexpected good luck and a variety of scientific discoveries have been credited to this kind of creativity (e.g. Penicillin) (Henry, 1991:12; Pfenninger & Shubik, 2001:15).

The third perspective on the origin of creativity is that it emerges from **association**. Under this hypothesis, creativity occurs through the application of procedures from one area to another (Pfenninger & Shubik, 2001:16) and lateral thinking and brainstorming are strategies supporting this approach to creativity (Henry, 1991:12; Monyai, 2006:120-121).

The fourth perspective on the origin of creativity is that it derives from **cognitive actions**. This perspective holds the belief that creativity is not unusual, and depends on normal cognitive processes such as recognition, reasoning and understanding (Pfenninger & Shubik, 2001:17). The emphasis here is on hard work and efficiency, and supporters of this theory, such as Weisberg (1986:12), point out that ten years of intense preparation tend to be essential to lead to a creative act. The logic of the cognitive position is that profound thinking about an area over a long time leaves the discoverer knowledgeable enough to notice anomalies that might be important (Henry, 1991:12). However, the research by Amabile (1999:50) suggests while a challenge contributes to creativity, that demanding too much can be counterproductive.

Based on the above, the researcher argues that creativity is not an unusual or rare trait, and accepts the notion that creativity is derived from certain

cognitive processes. These cognitive processes can ultimately be nurtured and developed in classrooms, thus leading to greater creative thinking.

From the origins of creativity, we need to move to the trends that are evident in the differing potentials and abilities of creative people. Although trends in creative abilities and potentials are not the focus of the study, a section on this issue is included to provide a comprehensive overview of the phenomenon creative thinking.

2.4.2 Trends in research on creative abilities and potentials

Various trends have been identified in creativity research. Feist and Runco (1993:271), for example, report that the most commonly studied topics in creativity research were enhancement, education, problem solving/incubation, social influences and personality (Runco, 2003:317).

One of the most important trends suggests that creativity research is becoming more rigorous. Rigour, in the scientific sense, specifically refers to objectivity, and this in turn indicates that there is more quality control, more agreement about techniques to ensure that empirical work is reliable and valid and presents less opportunity for bias and unjustified speculation (Runco, 2003:317).

It is possible to trace three prominent lines of development in creativity research related to abilities and potentials up to about the mid-1980s (Ryhammar & Brolin, 1999:262). Firstly, creativity was studied with the emphasis on personality aspects; secondly, it was studied with the emphasis on cognitive aspects; and thirdly, there has been a line of research involving various attempts to stimulate it (Ryhammar & Brolin, 1999:262). During the 1980s and 1990s, there emerged a fourth line of research, consisting of a social-psychological approach and systems thinking (Ryhammar & Brolin, 1999:262).

One reflects on the possibility that creative expression is sometimes personal and not easily compared with normative standards (Runco, 2003:317). The creative efforts of children, for example, are often original and meaningful for youngsters, but not in comparison with some larger norms. Clearly, when

interested in children, it is creative potential that is the primary concern, rather than unambiguous creative performance (Feist & Runco, 1993:271).

The emphasis of this research study is in line with two trends particularly that of creativity nurtured from a cognitive aspect, as well as looking at attempts to stimulate creativity.

As the present research wanted to determine how creative thinking is nurtured, the various tenets of creative thinking had to be identified in order to guide the data collection. The following section explores the tenets of creative thinking.

2.4.3 The tenets of creative thinking

The tenets of creativity are explored according to the views of two pioneers in the field, namely J.P Guilford (1966:186) and E.P Torrance (1977:14).

2.4.3.1 J.P. Guilford

Guilford performed significant work in the field of creativity, drawing a division between convergent and divergent production (commonly renamed convergent and divergent thinking) (Guilford, 1966:186). Convergent thinking incorporates aiming for a single, correct resolution to a problem, while divergent thinking involves creative production of multiple answers to a set problem. Divergent thinking is occasionally used as a synonym for creativity in psychology literature. In addition to the aforementioned terms, flexible thinking or fluid intelligence, which are roughly similar to creativity, are often used (Guilford, 1966:186).

Guilford's research pioneered the current psychometric study of creativity and informed the creation of several tests to measure creativity, such as:

- Plotting titles, where participants are given the plot of a story and asked to write novel titles.
- Providing quick responses is a word-association test scored for rarity.
- Figure concepts, where participants were given simple sketches of objects and individuals and asked to find traits or features that are common by two or more drawings; these were scored for rarity.

- Discovering atypical uses for common everyday objects such as bricks.
- Remote associations, where participants are required to insert a word between two given words (e.g. hand _____ call).
- Remote consequences, where participants are asked to produce a list of consequences of unanticipated events (e.g. loss of gravity).

2.4.3.2 E.P. Torrance

Torrance is best known for his research in creativity. In 1966 he created a benchmark technique for quantifying creativity with his Torrance Tests of Creative Thinking (Torrance, 1977:14). Building on Guilford's work, he constructed simple tests of divergent thinking and other problem solving skills, which were scored on four scales which each reflect a tenet of creativity (Torrance, 1977:14), namely:

- Fluency: The total number of interpretable, significant and relevant ideas generated in response to the stimulus.
- Flexibility: The number of different categories of relevant responses.
- Originality: The statistical uncommonness of the responses.
- Elaboration: The amount of detail in the responses.

In line with the definition of Nolan (2004:1), who described creative thinking as the generation of new ideas and concepts, the researcher argues that fluency, flexibility, originality and elaboration are required in the generation of new ideas and concepts.

To elucidate further, each of the four tenets that creative thinking should display, is discussed in detail below.

Fluency

The term fluency can be defined as *“the property of a person or of a system that delivers information quickly and with expertise”* (Pikulsky & Chard, 2005:510). Studies in the assessment of creativity list fluency as one of the four primary elements in creative thinking.

Creative fluency refers to the generation of a large number of different solutions to a problem and ideas concerning that problem (Torrance,

1977:15). According to the researcher, fluency can therefore be understood in terms of understanding, which is in contrast to the mere recalling and remembering of knowledge that is learned.

In line with the view of Torrance (1977:15), the researcher advocates that fluency is all about generating many different ideas. It is a valuable skill to practise because when one has many different ideas; one has more options and is therefore more likely to find appropriate solutions to one's problem (Pikulsky & Chard, 2005:512). In addition, often one idea leads to another, so by generating many ideas, one is allowing that process to flow naturally (Torrance, 1977:15).

With regard to the research, the researcher aimed to determine fluency during teaching by examining the teacher's application of Bloom's Taxonomy for thinking within specific learner activities. This particular taxonomy can be applied in the teacher's planning, teaching and assessment. How the taxonomy can contribute to the development of fluency was explained in the section focusing on Bloom's Taxonomy (*cf.* 2.3).

Different levels of thinking must be encouraged in the classroom to enhance fluency. There are varieties of teaching strategies that can stimulate the use of all of cognitive levels of Bloom's Taxonomy. These strategies are further discussed in Chapter 3 (*cf.* 3.4).

Flexibility

Flexibility is yet another element to be considered when encouraging creative thought and actions. While fluent thinkers try to come up with many ideas, flexible thinkers look for great variety (Torrance, 1977:16). Flexible thinkers go beyond the bounds of orthodox thinking and look for alternatives others fail to see. While rules are used as guidelines, they are not used as straightjackets that curb thinking. Flexible thinkers are those who are creative problem-solvers (Costa, 2009:21-23). Flexibility implies that the creative person can generate ideas that have multiple possibilities or realms of thinking (Torrance, 1977:16). For the researcher, flexibility therefore involves being able to see things from a variety of perspectives, as well as being able to use many different strategies and approaches to solve problems. The researcher is of

the opinion that flexibility is linked fluency. Fluency is about generating as many ideas as possible, and in doing so, it is important to generate ideas that are different from each other (flexibility) (Costa, 2009:21-23). Thinking flexibly is a valuable skill because it allows one to get out of a thinking rut in order to come up with a completely new idea.

Regarding this research, flexibility was evident if the teacher's teaching methods allow learners to generate multiple solution possibilities to a problem. In a learning area such as the Social Sciences, this must be done to ensure that learners can evaluate and judge events and not be biased.

Moreover, with reference to flexibility, the teacher's questioning skills were highlighted in the questionnaire, in terms of how it allows for the development of different modes of thinking (*cf.* 3.8.15).

Elaboration

Elaboration refers to the notion that ideas can be enhanced by providing elaborate detail (Torrance, 1977:16). Any topic under question, therefore, can be made more interesting and can improve understanding if additional detail and clarity are provided.

Learners need creative means of communicating their learning (Niehuis *et al.*, 2001:118). If creative thinking empowers deepened learning or enrichment of ideas, such learning cannot be measured through traditional assignments and assessments. When learners engage in elaboration, the expression of their new understanding requires more responses than filling in blanks or identifying multiple-choice answers (Torrance, 1977:16).

Tools such as Howard Gardner's (1983:528) theory of multiple intelligences can aid teachers in developing effective elaboration activities. The theory postulates that intelligence comprises various specific (primarily sensory) modalities, rather than seeing it as dominated by a single general ability. He differentiates between eight modalities, namely spatial, linguistic, logical-mathematical, bodily-kinaesthetic, musical, interpersonal, intrapersonal and naturalistic modalities (Gardner, 1983:528).

By asking learners to take ideas presented via text or lecture and re-present them in a different "intelligence", teachers foster creative thinking and enable

learners to communicate their learning in forms that fit their strengths and strengthen their weaknesses (Niehuis *et al.*, 2001:120).

According to the researcher, evidence of elaboration will be evident if a teacher has chosen teaching methods that allow learners to provide detailed responses to questions. Elaborative thinking can also be nurtured by providing elaboration by means of teaching resources, such as making use of political cartoons, maps and photographs in the teaching of Social Sciences. All these resources elaborate in a particular way on the topic being dealt with.

It should be noted, however, that teaching resources must be utilized correctly and effectively, otherwise the enrichment of learning will not take place and then learners will not be able to elaborate on their learning and thinking (Kincheloe, 2001:12-16). Simply making use of a particular resource is not sufficient, as it is the application of this resource that will ultimately determine whether learners' elaborative thinking is being nurtured or not. The particular teaching resources that can be utilized in the Social Sciences classroom are further discussed in Chapter 3 of the study (*cf.* 3.9).

Originality

Originality refers to any generated idea that is unusual, different or unique (Torrance, 1977:17). The researcher regards originality as a process of synthesizing or gathering information about a topic in a novel way, as an original work is one not received from others nor based on the work of others. It is a work created with a unique style and substance. The term "*originality*" is often applied as a compliment to the creativity of artists, writers and thinkers (MacFarlane, 2007:18).

Originality is without a doubt required for creativity, but an original idea or solution might lack the aesthetic appeal or adaptiveness that characterizes true creativity (Runco, 2003:318). Moreover, Runco (2003:318) argues that the originality of anything is most convincing when it is compared with objective standards. This suggests that ideas given by one person can or should be compared with those of his/her peers in order to determine originality.

The researcher argues that the teacher should allow learners certain freedom in the generation of unique ideas. Teachers should not force learners to learn in a predetermined fashion. Learner originality will be evident if the teacher allows learners to express their ideas freely, as well as allowing learners to interpret and give meaning to questions in their own unique way. This is in contrast to allowing only specific answers to questions, for example, answers must be identical to those of the textbook. The classroom climate, which largely is created by the teaching approach of the teacher, can also influence the development of learner originality. This particular aspect, and how it can influence creativity, will be addressed further in this chapter (*cf.* 2.6.7).

Within the research, the aforementioned conceptual framework of creative thinking according to Torrance (1977:17) was utilized in compiling the questionnaire items and the interview schedule. Moreover, these creative tenets were linked with specific teaching methods and strategies, to highlight those specific strategies that can nurture creativity. This will be explained further in Chapter 3 of this study (*cf.* 3.2 – 3.8).

The next section deals with the differing forms of creativity, ranging from the more stereotypical view of creativity in art to the focus of research on creative thinking in an academic context, which is the focus of this study.

2.4.4 Forms of creativity: what creativity is and what it is not

According to Sternberg and Lubart (1999:34), creativity has been attributed in various ways to divine intervention, cognitive processes, the social environment, personality traits and chance. It has been associated with being a genius, mental illness, humour and rapid-eye-movement sleep. Some say it is an inborn human trait; others say it can be taught with the application of simple techniques (Sternberg & Lubart, 1999:35).

Sternberg and Lubart (1999:35) further assert that although popularly associated with art and literature, creativity is also an essential part of innovation and invention and is important in professions such as business, economics, architecture, industrial design, graphic design, advertising, mathematics, music, science, engineering and teaching.

The various forms of creativity are explained further below, beginning with artistic and literary creativity.

2.4.4.1 Artistic and literary creativity

Sullivan and Harper (2009:20) state that most people associate creativity with the fields of art and literature. In these fields, originality is considered to be a sufficient condition for creativity, unlike other fields where both originality and appropriateness are necessary (Amabile, 1999:15).

Within the different modes of artistic expression, one can see a wide range, extending from interpretation to innovation. Established artistic movements and genres pull practitioners to the interpretation end of the scale, whereas original thinkers strive towards innovation. Conventionally, as argued by Sullivan and Harper (2009:20), we expect some creative people like dancers, actors and orchestral members to perform or interpret while allowing others, like writers, painters and composers more freedom to express the new and the different.

There is a variety of contrasting alternative theories related to artistic creativity, for example:

- artistic inspiration, which provides the transmission of visions from divine sources such as the Muses; and a taste of the divine;
- artistic evolution, which stresses obeying established or classical rules and imitating or appropriating to produce subtly different, but unshockingly understandable work; and
- artistic conversation, as in Surrealism, which stresses the depth of communication when the creative product is the language.

The next form of creativity that will be discussed is academic creativity.

2.4.4.2 Academic creativity

Torrance (1977:15) suggests that academic creativity is a way of thinking about learning, and producing information in school subjects such as science, mathematics and history. Few experts agree on a precise definition, but when the word is said, everyone senses a similar feeling, namely that when people are creative, we are aware of its special enthusiasm (Sternberg, 2006:87).

Sternberg (2006:88) asserts that creative learning is a natural, healthy human process that occurs when people become curious and excited. Creative thinking and learning involve such abilities as evaluation, especially the ability to sense problems, inconsistencies and missing elements, divergent production (fluency, flexibility, originality and elaboration); and redefinition (Torrance, 1977:16).

In contrast, learning by authority requires learners to use thinking skills such as recognition, memory and logical reasoning, the abilities most frequently assessed by traditional tests of intelligence and scholastic aptitude (Torrance, 1977:16). Sternberg (2006:90) indicates that children prefer to learn in creative ways rather than just memorizing information provided by a teacher or parents, and then they learn better and sometimes faster (Sternberg, 2006:90).

The following discussion focuses on industrial creativity.

2.4.4.3 Industrial creativity

According to Isen *et al.* (1987:1122), creativity today forms the core activity of a growing section of the global economy, the so-called creative industries, capitalistically generating wealth through the creation and exploitation of intellectual property or through the provision of creative services. The creative professional workforce is becoming an integral part of industrialized nations' economies (Mumford, 2003:107).

According to Mumford (2003:110), industrial creativity can also be linked to creative professions that include writing, art, design, theatre, television, radio, motion pictures, related crafts, as well as marketing, strategy, some aspects of scientific research and development, product development, some types of teaching and curriculum design, and more. Since many creative professionals (actors and writers, for example) are also employed in secondary professions, estimates of creative professionals are often inaccurate (Isen *et al.*, 1987:1123).

Intellectual creativity is the focus of attention in the next section.

2.4.4.4 Intellectual creativity

O'Hara and Sternberg (1999:251) state that there has been debate in the psychological literature about whether intelligence and creativity are part of the same process (the conjoint hypothesis) or represent distinct mental processes (the disjoint hypothesis). Evidence from attempts to look at correlations between intelligence and creativity suggested that correlations between these concepts were low enough to justify treating them as distinct concepts (Torrance, 1977:12).

According to O'Hara and Sternberg (1999:251), researchers believe that creativity is the outcome of the same cognitive processes as intelligence, and is only judged as creativity in terms of its consequences, when the outcome of cognitive processes happens to produce something novel, a view that certain psychologists have termed the "*nothing special*" hypothesis.

A very popular model is what has come to be known as "the threshold hypothesis", proposed by Torrance (1977:12), which holds that a high degree of intelligence appears to be a necessary, but not a sufficient condition for high creativity. This means that, in a general sample, there will be a positive correlation between creativity and intelligence, but this correlation will not be found if only a sample of the most highly intelligent people is assessed. Research into the threshold hypothesis, however, has produced mixed results ranging from enthusiastic support to refutation and rejection (O'Hara & Sternberg, 1999:251).

This study will mainly focus on academic creativity as, according to the researcher that is the form of creativity that can be nurtured within the Social Sciences classroom setting. Furthermore, in support of Runco (2003:317-324), the researcher argues that academic creativity is not dependent on any derivation from talent and anyone can be nurtured towards being creative. The researcher acknowledges that the other forms of creativity can be nurtured in the school setting, for example artistic creativity in the art classroom or industrial creativity in business studies. The views of Sternberg (2006:87) and Torrance (1977:15) related to academic creativity (*cf.* 2.4.4.2) are supported.

Traditional research into creativity has been based on simple paper and pencil idea-generation tests. Although there is some validity to these procedures for measuring fluency and flexibility of thought, creativity in the larger communal and professional systems of groups and organizations is a much more complex and interdependent construct with more room for social and perceptual influences (Kurtzberg, 2005:52) (*cf.* 2.6).

The next section deals with the four “P’s” of creativity, looking at the four facets of creativity, namely: the creative person, place, product and process.

2.5 THE FOUR P’S OF CREATIVITY: PERSON, PLACE, PRODUCT AND PROCESS

According to Rhodes (1961:305) and Richards (1999:733), there are four generally established facets to creativity. These are the creative person, the creative place, the creative product and the creative process (Ryhammar & Brolin, 1999:262; Isaksen *et al.*, 2000:75). Additionally these facets are interconnected, which makes creative thinking complicated to understand and to develop (Richards, 1999:733). Creativity is usually considered a new idea or insight that is recognized by experts in that field as having value, and is the essential first step to fuelling innovation (Ryhammar & Brolin, 1999:262). The next section will present an overview of the 4 P’s of creativity, comment on their interrelatedness and link their applicability to the Social Sciences classroom.

2.5.1 Person

We tend to think of people as being either creative or not creative, as if it is a fixed characteristic such as one’s height or eye-colour (Torrance, 1993:229; Runco, 2003:317-324). Creativity is not unique or strange; we are all creative to different degrees. Creativity has little to do with IQ. It is our usage or under-usage of our normal thinking processes that impact our creative output. All individuals (Rhodes, 1961:305; Runco, 2003:317-324) can acquire creative thinking skills. The researcher therefore identifies the creative person in the research as being the Grade 9 Social Sciences learners, as all the learners have creative potential that needs to be nurtured.

2.5.2 Place

Our families, schools, community, religion and workplace, as well as the overall culture in which we live and interact with others, have major impacts on creative thinking (Richards, 1999:735; De Bono, 2004:36-49; Shi, 2004:173-187). This is referred to formally as the pressure of the environment. The values and norms of our upbringing and current environment dictate whether we are encouraged or discouraged from being creative and whether our ideas or products are recognized as being creative.

Amabile (1999:53) says that our social environment can significantly affect intrinsic motivation, both positively and negatively to think creatively. We often become motivated to think and act creatively when we become personally interested in or curious about a new technology, research data or trend. On the other hand, working on something imposed on us by outside sources without being personally interested has negative effects on our creative thinking (Rhodes, 1961:307).

In the context of the research, the researcher identifies the creative place as being the actual Social Sciences classroom, where stimulating experiences should provide the motivation for creative thinking to be nurtured.

2.5.3 Product

In the Western world, a physical product or outcome is characteristically the only facet of creativity that is acknowledged (Rhodes, 1961:309). This argument implies that the focus is on the finished product and many tend to forget there was a process of multiple creative failures that happened first. The environment or the team of people that encouraged the development of the product may be ignored.

According to Runco (2003:319), many existing theories of creativity are focused on objective performances and achievements and they tend to be product-orientated. If creativity is defined in terms of objective performances and actual achievement, learners have a poor chance of being identified as creatively gifted. Their creativity is often not impressive enough when compared with adult creative achievements (Runco, 2003:319).

According to Torrance (1993:231), new products and ideas often have a difficult time getting past the 'gatekeepers' who determine the idea's value, sometimes arbitrarily or with limited foresight. Occasionally the product or idea is so radical and ahead of its time, that it is ridiculed or goes unrecognized for years.

The researcher identifies the creative product in the research as being the learning products of learners who are able to elaborate on their thinking, who are flexible, original and fluent thinkers.

2.5.4 Process

The creative process refers to the sequence of thoughts and actions that lead to a novel, adaptive production (Lubart, 1999:339). Guilford (1966:188) noted that the complete creative act involves four important steps, traditionally identified as preparation, incubation, illumination and verification. For a number of researchers, this four-stage model has served as the basis for understanding the creative process (Lubart, 1999:339; Isaksen *et al.*, 2000:1-13; Runco, 2007:19).

Poincare (1908:27) noted that the creative process seems to start with conscious work on a problem. This is followed by unconscious work, which if successful, results in a sudden illumination. Then another phase of conscious work follows to put in shape the results of this inspiration (Lubart, 1999:340).

Preparation involves a preliminary analysis of a problem, defining and setting up the problem. It draws on one's education, analytical skills and problem-relevant knowledge (Lubart, 1999:340; Runco, 2007:19). The **incubation** stage follows where there is no conscious mental work on the problem. The mind continues to work on the problem, forming links and associations. The unconscious mind rejects most of these combinations as useless, but occasionally finds a promising idea (Lubart, 1999:340; Runco, 2007:19). **Illumination** occurs when the promising idea breaks through to conscious awareness. This is characterized by a flash or sudden enlightenment (Runco, 2007:19). Following illumination there is a phase of conscious work called **verification**, which involves evaluating, refining and developing one's idea (Lubart, 1999:340; Runco, 2007:19).

According to Richards (1999:738), there are potentially exponential trials of creative processes compared to final products. All attempts, successful or unsuccessful, should be considered creative. However, the prevailing culture tends to brand only the successful products as creative (Rhodes, 1961:310).

In the context of the research, the researcher identifies the creative process as being the way in which the teacher nurtures creative thinking through the choice of teaching methods linked to the effective usage of teaching resources, flexible questioning and allowing learner originality. It is assumed that if this process is followed, creative thinking will be nurtured. The four stages of preparation, incubation, illumination and verification are important factors to take account of during teaching, as the Social Sciences teacher must incorporate these processes in order for the creative thinking to occur.

Although the study did not set out to determine barriers to creativity and creative thinking empirically, a section on barriers to creativity is included to contribute to a complete overview of the creativity phenomenon. Essentially, the researcher regards classroom climate (*cf.* 2.6.7), which is *inter alia* shaped by the teaching methods, strategies and resources that teachers use, as an important barrier to creative thinking in the context of the study.

2.6 BARRIERS TO CREATIVE THINKING

More research has shown that there is a link between creativity and diversity, primarily achieved by having a variety of opinions or perspectives in the group. This can lead the group towards more original, more divergent and more complex group products (Kurtzberg, 2005:53).

Research on group creativity has revealed both potential benefits and potential detriments to creative work on the group level (Kurtzberg, 2005:53). Research pointing towards the beneficial nature of group creativity states that there will be an increased likelihood of novel ideas generated based on the associations group members will have derived from the thoughts and ideas of others (Kurtzberg, 2005:53).

On the more detrimental side of the research into group creativity, it points to drawbacks such as social loafing, production blocking and evaluation apprehension (Kurtzberg, 2005:53). That being said, it seems that people

consistently perceive creative groups to be more effective and believe that groups will help produce higher quality ideas, as in the case of group brainstorming, as opposed to the individual working alone to generate ideas.

However, it does seem that we do not yet have a complete understanding of how the interactions of individuals within a group affect the creative process (Kurtzberg, 2005:53). In terms of measurement of group creativity, the trend is to rely primarily on traditional quantitative measures similar to those used most often in individual creativity tasks.

Previous research has indicated that groups fare better when they are heterogeneous in nature (Kurtzberg, 2005:53). Results have demonstrated that a large number of characteristics of individuals may affect the group's processes and performance. A list has been drawn up of a number of different attributes potentially affecting creative thinking according to Baer (2005), Hennessey (2004:32), Lubart and Getz (1997:285), McCoy and Evans (2002:409), Rudowicz (2003:273), Runco (2003:317), Ryckman (2004:16) and Starr (2004:5), namely gender, personality, cultural values, intelligence, emotion, motivation, giftedness and classroom climate.

For Kurtzberg (2005:53,54), the vast majority of these dimensions are most likely clues that other differences more cognitive in nature exist between teammates. Instead, one of two underlying mechanisms is most likely operating to create the performance differences we observe: differences in knowledge bases and differences in the cognitive processes that people employ to accomplish tasks.

For the purposes of this study, the researcher will focus on all the above-mentioned attributes, and how they can ultimately become barriers to creative thinking (*cf.* 2.6).

Various barriers can hamper the nurturing of creative thinking. This next section will deal with the nature/nurture problem in creative thinking, the links of creative thinking and motivation, creative thinking and personality, whether creative thinking is seen differently across cultures, gender differences and creative thinking, giftedness and creative thinking, as well as classroom climate's effects on creative thinking.

2.6.1 The nature/nurture problem in creative thinking

Intelligence has been defined in different ways, including the abilities for abstract thought, understanding, communication, reasoning, learning, planning, emotional intelligence and problem solving (Patterson, 2008:404).

Runco (2003:317) asserts that there has been dispute in the psychological literature about whether intelligence and creativity are part of the same process (the conjoint hypothesis) or characterize distinct mental processes (the disjoint hypothesis) (*cf.* 2.4.4.4). Evidence from attempts to look at similarities between intelligence and creativity from the 1950s onwards, by authors such as Guilford (1966:188), regularly recommended that correlations between these concepts were low enough to validate treating them as distinct concepts (Runco, 2003:317).

2.6.2 Creative thinking and motivation

Motivation is defined as the generation of goal-oriented behaviour (Pintrich & Schunk, 2002:5-7) and motivation is said to be either intrinsic or extrinsic (McCoy & Evans, 2002:409). Intrinsic motivation refers to motivation that is driven by an interest or enjoyment in the task itself and exists within the individual, rather than relying on any external pressure (Pintrich & Schunk, 2002:5-7). Research has found that it is usually associated with high educational achievement and enjoyment by learners. Intrinsic motivation has been explained by Bandura's work (1997:604) on self-efficacy, arguing that learners are likely to be intrinsically motivated if they:

- attribute their educational results to internal factors that they can control (e.g. the amount of effort they put in);
- believe they can be effective agents in reaching desired goals (i.e. the results are not determined by luck); and
- are interested in mastering a topic, rather than just rote-learning to achieve good grades.

Extrinsic motivation comes from outside the individual. Common extrinsic motivations are rewards like money and grades, coercion and threat of punishment. Competition is in general extrinsic because it encourages the

performer to win and beat others, not to enjoy the intrinsic rewards of the activity (Lubart & Getz, 1997:285; Pintrich & Schunk, 2002:5-7). Social psychological research has indicated that extrinsic rewards can lead to over-justification and a subsequent reduction in intrinsic motivation (Kerr, 1995:7).

The researcher is of the opinion that if learners are to realize their creative potential, particular attention must be paid to the promotion and maintenance of intrinsic motivation in the classroom, as creative thinking does not come about in a vacuum (McCoy & Evans, 2002:409; Pintrich & Schunk, 2002:5-7). There is a direct link between the motivational orientation brought to a task by a learner and the likelihood of his/her being creative at that task, and it is the environment that in large part shapes that motivational orientation (McCoy & Evans, 2002:409; Pintrich & Schunk, 2002:5-7).

2.6.3 Creative thinking and personality

Personality can be defined as a dynamic and organized set of characteristics possessed by a person that uniquely influences his or her cognitions, motivations and behaviours in various situations (Ryckman, 2004:16).

Winnicott (1971:76) suggests that creativity can be present at every age, but it is related to first life experiences that are crucial for the development of a healthy personality and for the realization of creative potential. Caregivers' atonement and changes to the child's needs produce in the child the illusion of an external reality that corresponds with their own ability to create, allowing children to experience their feelings as their own (Winnicott, 1971:76).

In this regard, Rayner *et al.* (2005:24) argue that if the adult is attuned and involved, children will be able to experience their emotions within controllable restrictions, to make meaning and control them; children will learn to feel comfortable about their own impulses therefore they will become able to build and use their internal resources and to develop their intuition. The adult provides the framework to explore the inner impulses as originating from the self. Therefore, children become able to relate to the self, the caregiver and the world in a caring, creative way.

However, if the educational experience is harmful, all the frustrations that the child cannot control become impingements, individuality and creativity remain

hidden in a false self-organization and impulses are experienced as not being a part of the self (Winnicott, 1971:80). The experience of shame at early stages of development can lead to future blockages in the creative process (Rayner *et al.*, 2005:24).

Eakle (2007:177-186) regards play, fantasy, the experiences of control and ownership over the own body, role simulation of adults, early literacies broadly defined, and socialization as developmental experiences crucial to both personality construction and creativity development. Play is particularly significant because it involves the basic components of the creative process such as combining and generating new possibilities, experimentation and exploration of the confines of reality and fantasy (Eakle, 2007:179). A good session of play leaves a child calmer and content, while disrupted play can leave a child in profound distress, whereas an over-strict climate where playing is devaluated can stop play from happening. In addition, a frightened child is unable to play and if play is disrupted, the child feels full of frustrations that are torturing the self; consequently such a child can begin to torture others and develops cruel play that involves sadistic, unempathic, cold and even malicious behaviours (Rayner, 2005:125). These ruthless games can continue into adult life, for instance, in malevolent creativity, or criminal behaviour (Rayner *et al.*, 2005:25).

The next section focuses on how creative thinking is viewed across different cultures.

2.6.4 Creative thinking across cultures

Culture can be defined as the heritage of social norms, ethical values, traditional customs, religious beliefs, political systems and specific artefacts and technologies of a specific group of people or community (Duchesne, 2011:28). Two prevailing global cultures can be identified, namely Western and Eastern culture. Western culture refers to cultures of European origin, whereas eastern culture refers to the cultures of the Middle East and Eastern Asia (Duchesne, 2011:28). A third, identified as the African culture, can also be distinguished (Thorpe, 1996:32).

Rudowicz (2003:273) is of the opinion that culture can influence creative thinking in a variety of ways, the most apparent being how creative thinking is valued in diverse cultures. However, the most basic way that creative thinking may vary across cultures is in its very meaning (Rudowicz, 2003:273). Therefore, the first step in assessing how culture may influence creative thinking is to ascertain how creative thinking is understood in the cultures in question.

Lubart (1999:340) reviewed the anthropological and philosophical literature on creative thinking in Indian, East Asian and, to a lesser degree, African societies and concluded that there are distinct Eastern, Western and African conceptions of creative thinking.

Johnson (2011:147) argues that in Western culture, creative thinking is defined most commonly as a quality attributed to a person or a process that frequently produces a novel and appropriate solution to a problem (Johnson, 2011:147). The consensus is that creative thinking should include the features of both usefulness (appropriateness) and originality or novelty (Amabile, 1996:6). Appropriateness has been defined as usefulness, correctness, value and fitting the demands of the situation and the needs of the creator (Ageyev, 2003:432-449; Panofsky, 2003:411-431). It is therefore not sufficient for a product to be new, it must also fulfil its function.

The fundamental issue is whether both novelty and appropriateness are uniformly applicable dimensions of creative thinking for people across different cultures (Johnson, 2011:147; Rudowicz, 2003:278). According to some authors, it is the Western cultures' conception to view creative thinking as something both novel and appropriate. Lubart (1999:342) suggested that the element of novelty might not be well suited to non-Western cultures. Western creative thinking is seen as having a finite beginning and end, and is primarily concerned with innovation.

The Eastern culture's concept of creative thinking involves a state of personal fulfilment, unlike the Western view of creative thinking involving a linear movement towards a new point. The Eastern view sees the creative process as a circular movement in the sense of successive reconfiguration (Johnson,

2011:147; Lubart, 1999:341). The Eastern conception of creative thinking is more dynamic, involving the reuse and reinterpretation of tradition rather than breaks in tradition (Ageyev, 2003:432-449; Lubart, 1999:342; Panofsky, 2003:411-431).

Within the African culture, the philosophy of “ubuntu” is emphasized (Thorpe, 1996:32). Ubuntu philosophy holds that all people should be treated with respect and dignity, because a person becomes a person through other people. The good of the community is held to be greater than the good of the individual because in the long term, the one ensures the other. A sense of collective agency governs the thinking of the African culture (Ayisi, 1992:12). Individuals raised in a society focusing on holistic, collective thought and social obligation, as in the African culture, focus on paying attention to relationships and rely on experience-based knowledge rather than an abstract logic, reconciling, transcending or even accepting contradictions (Nisbett *et al.*, 2001:29). There is also avoidance as a means of dealing with conflict, an absence of participation in discussions and an absence of meeting the requirements of rhetoric, for example the statement of principles and assumptions, derivations, hypotheses, evidence, argumentation, conclusion, making judgements and identifying contradictions (Nisbett *et al.*, 2001:291). The implication for creative thinking is therefore that Africans seem to learn best in groups and that the teacher needs to structure the content in such a way that it can stimulate group creative thinking.

It is therefore necessary to avoid the mechanical projection of the concept of creative thinking developed in the West onto other cultures, as this is in opposition to the Eastern and African cultures’ views regarding creative thinking (Ageyev, 2003:432-449; Panofsky, 2003:411-43; Rudowicz, 2003:278). However, irrespective of culture, at school level all learners are expected to adhere to outcomes that *inter alia* relate to the nurturing of creative thinking in an academic context (*cf.* 2.4.4.2).

The next section focuses on whether gender differences can influence creative thinking.

2.6.5 Gender differences and creative thinking

Gender is defined as a range of characteristics distinguishing between male and female, particularly in the cases of men and women and the masculine and feminine attributes assigned to them. Depending on the context, the discriminating characteristics vary from sex to social role to gender identity (Papalia *et al.*, 2008:301).

There is evidence of gender differences in creative achievement, particularly at the highest level, since there have been more geniuses and notable men in the sciences, arts, literature, music and technical development than women (Eysenck, 1995:81; Papalia *et al.*, 2008:301; Reiss, 1999:699). Gender differences in creative accomplishment differ significantly according to the field of study, since there are areas such as writing, dance or theatre where women can also be found in the upper ranks (Baer, 1999:753; Baer, 2005).

Eysenck (1995:81) recommends that the origin of masculine dominance in creative achievement is of a biological character. However, research seems to point out that the explanation for gender differences in creative accomplishment seems to be principally a result of environmental differences in the growth of children and in the situation in which creative achievement is accomplished and evaluated (Eysenck, 1995:81; Papalia *et al.*, 2008:301).

Baer (1999:753) and Baer (2005) suggest that a mixture of environmental factors can explain gender differences in creative achievement. These factors are: gender differences in access to schooling and resources, since men have historically controlled women's access to many fields and also limited their development; different expectations for and socialization of girls and boys; and men's control of the standards by which an achievement is judged as creative. Furthermore, some authors (Reiss, 1999:699; Simonton, 2002:279) claim that the myth of the lack of creative thinking in women is also because the creative contributions of women have not been recorded.

Few studies have been conducted which examine creative thinking in underrepresented groups such as women and minorities (Simonton, 1998:151; Simonton, 2000:158). Simonton (2002:279) considers the creative process to be primarily the same among humans, because it emerges directly

from some elemental features of the human brain as an information-processing system. Yet, there are aspects of the occurrence that can operate differently, depending on gender, ethnicity, socioeconomic level or demographic variables.

The following section explores the link between giftedness and creative thinking.

2.6.6 Giftedness and creative thinking

For Hennessey (2004:35), the term gifted and talented when used in respect to learners, children or youths means learners, children or youths who give evidence of high performance capability in areas such as intellectual, creative, artistic or leadership capacity, or in specific academic fields. In addition, gifted learners require services or activities not ordinarily provided by the school in order to develop their capabilities fully (Hennessey, 2004:35).

Generally, according to Hennessey (2004:36) gifted individuals learn more quickly, deeply and broadly than their peers. Gifted children may learn to read early and operate at the same level as normal children who are significantly older. The gifted tend to demonstrate high reasoning ability, creativity, curiosity, a wide vocabulary and an excellent memory. They can often master concepts with few repetitions.

Furthermore, the gifted, according to Hennessey (2004:37), may also be physically and emotionally sensitive, perfectionistic and may frequently question authority. Some have trouble relating to or communicating with their peers because of disparities in vocabulary range (especially in the early years), personality, interests and motivation. As children, they may prefer the company of older children or adults.

Amabile (1999:52) states that creativity is an essential element of giftedness, but that giftedness is not necessarily an essential element of creativity, as any person, whether gifted or not, has the potential to develop creativity.

As the focus of the study relates to the nurturing of creativity in a classroom context, attention is now paid to the link between classroom climate and creative thinking.

2.6.7 Classroom climate and creative thinking

Classroom climate is defined as the type of environment that is created for learners by the school, teachers and peers (Costa, 2009:97-116; Marzano *et al.*, 1988:61; Starr, 2004:5; Sullivan & Harper, 2009:1-20).

An integral part of teaching that is designed to foster critical and creative reflection is the type of classroom environment which the teacher helps to create through the teaching methods and strategies and resources employed during teaching (McCoy & Evans, 2002:409; Sullivan & Harper, 2009:1-20). The type of climate which appears to be most desirable (Costa, 2009:97-116; Marzano *et al.*, 1988:61; Paul, 1985:36) is one which fosters psychological safety and intellectual freedom within a structure where individuals respect one another as persons of unconditional worth (Hennessey, 2004:35; Sullivan & Harper, 2009:1-20).

Ekvall (1996:105) spent many years looking at the organizational climatic factors (or dimensions) which affect organizational creativity or, in the case of the study, classroom creativity. These dimensions are challenge, involvement, freedom, trust and openness, idea time, playfulness and humour, conflicts, idea support, debates and risk taking (Ekvall, 1996:105). When learners become part of the classroom design and décor, the dimensions of a creative climate are satisfied and a welcoming environment is established.

McCoy and Evans (2002:413) emphasize that teachers can move towards developing their classrooms into more thoughtful places by making judgments and decisions from a base of empathy and understanding, by valuing originality and authenticity, and by using differences of opinion as teaching situations, which invite thoughtful analyses. More specific activities and strategies for the improvement of thinking abilities will also be proposed, with the qualification that the best ways to foster critical and creative thinking will continue to be developed by reflective practitioners as they come to know their learners (Costa, 2009:97-116; Hennessey, 2004:36).

The researcher argues that taking time to set the environment can have positive effects on learners' feelings about school and learning. According to Dudek (2000:38), an experience of different school environments and

methods brings with it a range of ideas from the overwrought chaos of classrooms dripping with children's drawings and paintings, to the classrooms of teachers who perhaps give little thought to the quality of the environment and reinforce a dull uninspiring atmosphere. The first mentioned environment in which thought is instilled in the environment is more conducive to nurturing creative thinking in the classroom (Costa, 2009:97-116).

Finally, the link between creative thinking and emotion is explored.

2.6.8 Creative thinking and emotion

According to Lubart and Getz (1997:285), a substantial body of research exists on certain aspects of creative thinking, such as the role of the personality, motivation, social environment, etc. However, the link between emotion and creative thinking has only begun to be explored.

Emotion can contribute to creative thinking in many ways. For example, the affective pleasure in challenge may be related to curiosity and problem-finding ability; and positive and negative mood states may accompany creative work (Lubart & Getz, 1997:285).

Lubart and Getz (1997:286) also suggest that three potential influences of emotion on creative thinking exist, firstly of how emotion can be a motivating force. Freud described artists and writers as people who express certain emotional needs through their creative productions (Lubart & Getz, 1997:286; Rayner *et al.*, 2005:24).

Secondly, emotion may place the creator in a heightened state of awareness. In an emotional state, people may notice stimuli in the environment that they would usually overlook, or they may interpret stimuli in novel ways because of their emotional perspective (Lubart & Getz, 1997:286; Rayner *et al.*, 2005:24). Thirdly, emotions can elicit specific concepts that may contribute to creative thinking (Lubart & Getz, 1997:286).

The next section focuses on why nurturing creative thinking among learners is important, in order to provide a rationale for conducting a study on creative thinking among learners in Social Sciences classrooms.

2.7 THE IMPORTANCE OF NURTURING CREATIVE THINKING AMONG LEARNERS

Too little of teaching is focused on nurturing learners' ability to think in creative ways (Puccio *et al.*, 2006:19). In support of Puccio *et al.* (2006:19), the researcher concurs that an educational system should train learners to become independent thinkers and not end up creating individuals who readily conform to prevailing thought, but individuals who take a reactive rather than a proactive approach to problem solving, and individuals who would rather follow than lead (Puccio *et al.*, 2006:19).

Unfortunately, the educational experience of many young people conditions them to take a passive approach to the learning process and they learn that the way to earn good grades and to make it through school successfully is to memorize information and to recall this information when called upon (Puccio *et al.*, 2006:23). Thus, teachers often treat learners as simple input-output systems: pump information into them, to assess the information that comes out and not concern themselves with the extent to which the information has been internalized (Puccio *et al.*, 2006:23). According to the researcher, this presents a serious threat to society. There is the danger of producing a generation that is unable to engage in higher-order thinking skills; a generation, that becomes trapped too easily by their own knowledge and is unable to challenge their own assumptions so that new knowledge can be created.

From the importance of nurturing creative thinking among learners, the researcher now moves on to how to apply it within the current curriculum. Since this study focused on Social Sciences, the discussion that follows addresses the Social Sciences curriculum.

2.8 NURTURING CREATIVE THINKING IN THE SOCIAL SCIENCES CLASSROOM

The Social Sciences Learning Area studies relationships between people, and between people and the environment. These relationships vary over time and space. They are also influenced by social, political, economic and

environmental contexts, and by people's values, attitudes and beliefs (Department of Education, 2003:3).

The Social Sciences Learning Area is concerned with both what learners learn and how they learn and construct knowledge. History and Geography are presented in Social Sciences as separate, but linked disciplines. The recent curricular changes within South Africa have led to the introduction of the Curriculum and Assessment Policy Statements (CAPS). However, despite the minor curriculum change, the focus of Social Science in Grade 9 has remained the same, in that learners must identify and solve problems and make decisions using critical and creative thinking (South Africa, 2011:5).

The following section explores possibilities for nurturing creative thinking in History.

2.8.1 History and creative thinking

According to Carr (2001:46), History is the study of the past, with special attention to the written record of the activities of human beings over time. It is a field of research, which uses a narrative to examine and analyse the sequence of events, and it often attempts to investigate objectively the patterns of cause and effect that determine events.

Jackson (2005:8) asserts that when encountering the past, the creative thinking of the historian is directed to understanding unfamiliar structures, contexts, cultures and belief systems. Imagining what the past was like – how, why and when people did certain things, is central to being a historian.

Historical imagination is vital to grasping the 'other' times and places under examination and to conveying both that difference and a personal understanding of it. The ability to see a situation from a point of view that is not present-minded is perhaps an essential component of the historian's creative thinking and imagination (Jackson, 2005:9).

In order to determine the link between creative thinking and History, the Learning Outcomes and the Assessment Standards that have to be achieved by learners at school will now be examined.

2.8.1.1 Learning outcome 1: historical enquiry

The learner will be able to use enquiry skills to investigate the past and present.

Important enquiry processes for achieving this Learning Outcome include the following Assessment Standards:

- finding sources;
- working with sources - asking questions, finding information, and organizing, analysing and synthesizing information; writing a piece of history (answering a question); and
- communicating historical knowledge and understanding (communicating an answer) (Department of Education, 2003:8).

These assessment standards can all develop creative thinking. The first assessment standard regarding finding sources refers to investigation on the part of the learner, involves differentiating between sources that are of value and those that are not. This involves critical thinking, which plays an important role in creative thinking. According to the researcher, this critical thinking approach towards sources generates both fluency and flexibility, as new and different ideas are being generated when these comparisons between sources are being made.

The second assessment standard, which involves working with sources, can most definitely nurture creative thinking. This is possible in the sense that synthesizing information is a creative task, where learners will need to gather information from a variety of sources to be able to give an answer. This links with Bloom's Taxonomy on the fifth level of synthesis, which was previously identified as being the level on which creative thinking operates (*cf.* 2.3). The synthesis act can also stimulate fluency and originality, as according to the researcher, combined ideas can lead to unique products and solutions.

The third assessment standard can be used to nurture creative thinking, but is dependent on the learner, as well as on the teacher. Learners can get the opportunity to communicate their knowledge in a creative manner by writing essays, and taking part in debating and role-playing. The teacher however,

must allow the learners to express their ideas freely in a creative manner and not stifle their creative thinking. This particular assessment standard can nurture originality among the learners, if the climate allows for it.

2.8.1.2 Learning outcome 2: historical knowledge and understanding

The learner will be able to demonstrate historical knowledge and understanding.

Important enquiry processes for achieving this Learning Outcome as set out in the Assessment Standards include dealing with and understanding:

- chronology and time;
- cause and effect; and
- similarity and difference (Department of Education, 2003:8).

These Assessment Standards can be used to stimulate creative thinking. When dealing with chronology and time, learners can, for example, make use of imaginative thinking when dealing with the time period under study, such as with ancient societies like Ancient Egypt. This can stimulate originality among learners as they imagine in their own unique way.

The Assessment Standard dealing with cause and effect lends itself to the nurturing of creative thinking, in the sense that learners could be given scenarios with the results given, where they will have to come up with the causes that led to the effects, thus allowing for innovative thinking. This will help nurture fluency, as new ideas must be imagined as to why these events occurred.

The Assessment Standard dealing with similarity and difference can also nurture creative thinking. The core cognitive skill taught when dealing with similarity and difference is that of analysis and synthesis. When seeing similarities between two things, one first analyses to see if there are similarities. Then one must synthesize that information into one concept. An example of this would be to compare the two dictators Adolf Hitler and Joseph Stalin. Therefore, this particular Assessment Standard could potentially nurture both critical and creative thinking, ultimately leading to increased fluency and flexibility.

2.8.1.3 Learning outcome 3: historical interpretation

The learner will be able to interpret aspects of history.

Important enquiry processes for achieving this Learning Outcome are included in the following Assessment Standards:

- interpretation based on historical sources;
- understanding that there are issues which influence interpretation; and
- interpreting public representation of the past, archaeology and memory (Department of Education, 2003:9).

It is the opinion of the researcher that these particular Assessment Standards lend themselves towards the nurturing of creative thinking. Interpretation of sources can be considered a creative process, for example the interpretation of political cartoons. The learner is expected to understand the situation represented in the cartoon and then to synthesize all the background knowledge based on the cartoon to be able to interpret its meaning. This activity lends itself well to the improvement of elaborative thinking, as resources enable deeper insights and meaning, enriching understanding (Torrance, 1977:16).

The following section explores possibilities for nurturing creative thinking in Geography.

2.8.2 Geography and creative thinking

Geography is a science that studies physical and human processes and spatial patterns on earth in an integrated way over space and time. It examines the spatial distribution of people and their activities, physical and fabricated features, ecosystems and interactions between humans, and between humans and the environment in a dynamic context (Department of Education, 2003:3). Approaching teaching and learning in Geography through regional or thematic studies strengthens the integration of knowledge, understanding, skills and techniques.

In order to determine the link between creative thinking and Geography, the Learning Outcomes and the Assessment Standards that have to be achieved by learners at school will now be examined.

2.8.2.1 Learning outcome 1: geographical enquiry

The learner will be able to use enquiry skills to investigate geographical and environmental concepts and processes.

Important enquiry processes for achieving this Learning Outcome are included in the following Assessment Standards:

- finding sources relevant to the enquiry;
- working with the sources - asking questions, finding information and organizing, analysing and synthesizing information;
- answering questions and considering practical actions where possible; and
- reporting on the finding of the enquiry process using different communication skills (Department of Education, 2003:12).

Once again, just as in the case with the first Learning Outcome for History, the researcher regards the finding of relevant sources stimulating for investigation on the part of the learner. This process involves sorting sources according to their perceived value on the topic under discussion, and involves critical thinking, which is an important skill for executing creative thinking, of which its application could lead to improved fluent and flexible thinking.

Working with sources by asking questions, analysing and synthesizing information can nurture creative thinking. In addition, the researcher argues that to combine separated facts and ideas into a complete, whole, new idea is seen as creative thinking, and that is done when synthesizing information. The process of synthesizing many ideas and combining them into one new idea links with the nurturing of fluency as many ideas are being generated in the process.

2.8.2.2 Learning outcome 2: knowledge and understanding

The learner will be able to demonstrate geographical and environmental knowledge and understanding.

Important enquiry processes for achieving this Learning Outcome as set out in the Assessment Standards include dealing with and understanding:

- people and places;

- people and resources; and
- people and the environment (Department of Education, 2003:13).

The researcher regards enquiry as a skill that can also nurture creative thinking. When learners enquire in Geography, they must understand complex factors involving the environment and resources. To investigate these factors could inevitably nurture creative thinking, as learners will need to think of ways in which to resolve environmental issues. Thinking of how to solve issues and to come up with solutions leads to idea generation that is closely linked with fluency.

2.8.2.3 Learning outcome 3: exploring issues

The learner will be able to make informed decisions about social and environmental issues and problems.

Important enquiry processes for achieving this Learning Outcome are included in the following Assessment Standards:

- identifying the issue;
- understanding factors affecting the issue; and
- making choices or decisions or providing alternatives (Department of Education, 2003:14).

To identify issues and then to make choices about these issues and to provide alternatives according to the researcher, will definitely nurture creative thinking. Creative thinking can be nurtured when alternatives need to be selected and the learner needs to be innovative when coming up with solutions. This process links with originality and flexibility, as they both contain elements of innovation.

2.9 CHAPTER SUMMARY

Research related to creativity started as early as 1948 with the work of Poincare (*cf.* 2.2). The official starting point of scientific research commenced with the work of Guilford in 1950 (*cf.* 2.2).

Creativity is a cognitive skill (*cf.* 2.3) that involves novelty, originality and imagination (*cf.* 2.4). There are various beliefs regarding the origins of

creativity, ranging from grace, accident, association and cognitive origins (*cf.* 2.4.1).

The tenets of creativity research were addressed by looking at the works of Guilford (*cf.* 2.4.3) as well as Torrance (*cf.* 2.4.3). The fields of flexibility, the difference between ideas; originality, the novelty or uniqueness of ideas; elaboration, the adding of detail or enrichment of ideas and fluency; and the generation of many ideas, were identified as important tenets of creativity.

Creativity takes various forms, such as artistic creativity (*cf.* 2.4.4.1), which has been described as the stereotypical form of creativity in the arts; academic creativity (*cf.* 2.4.4.2), which sees creativity as a cognitive process that takes place when people think; industrial creativity (*cf.* 2.4.4.3), which is creativity in the workplace in which new ideas and solutions need to be made; as well as intellectual creativity (*cf.* 2.4.4.4), which states that both intelligence and creativity are necessary for the others to function.

The four P's or facets of creativity involve the creative person (identified as the Social Sciences learner), the creative place (identified as the Social Sciences classroom), the environment in which creativity can flourish, the creative product (identified as learning products of learners) and the creative process (identified as the use of specific teaching methods and resources that can aid in nurturing creative thinking) (*cf.* 2.5).

Various barriers were furthermore identified that can hamper creative development, such as intelligence (*cf.* 2.6.1); motivation (*cf.* 2.6.2), which is important in the nurturing of creativity especially regarding intrinsic motivation; personality (*cf.* 2.6.3), which plays a role in the development of originality; culture (*cf.* 2.6.4), which highlighted the differences between the Western, Eastern and African ideas regarding creativity; gender differences (*cf.* 2.6.5), in which it was noted that due to historical indifference, men were more highly regarded than women due to inventions mainly being invented by men; giftedness (*cf.* 2.6.6), which links with the discussion on intelligence; as well as classroom climate (*cf.* 2.6.7), as the creative place or environment also enables stimulation of creative thinking.

The inherent value and importance of nurturing creative thinking among learners was established as teaching learners to become independent thinkers with a proactive approach to problem solving (*cf.* 2.7). Each learning outcome for both History and Geography holds the possibility to nurture creative thinking (*cf.* 2.8).

Based on the information in this chapter, the researcher agrees that creativity is an important cognitive skill that can and needs to be nurtured. The researcher identifies the origin of creativity as stemming from cognitive origins, meaning that any mind has the potential to become creative. The major tenets of flexibility, fluency, elaboration and originality, as proposed by Torrance (1977:16), form the basis of this study. The researcher believes that fluency can be stimulated if the teacher makes use of Bloom's Taxonomy (Bloom, 1956:9). Flexibility can be achieved if the teacher's questioning skills allow for variation in thinking. Elaboration can be strengthened if a wide variety of teaching methods and resources are used. Originality can be fostered if the teacher allows for freedom of expression and ideas. This study primarily focuses on creativity in the form of academic creativity as it takes place within a classroom environment. The researcher acknowledges the four "P's", as being central facets in the nurturing of creativity. The creative person is regarded as being the Social Sciences learners, the creative place is regarded as the Social Sciences classroom environment, the creative product is regarded as the learning products (tests, assignments, homework) of the learners and the creative process is regarded as the specific teaching methods and resources being utilized to foster creative thinking. Of the various barriers to creative thinking, the researcher regards classroom climate as being the most important, as an open climate can lead to nurturing of originality. The researcher also believes that the nurturing of creative thinking is essential in developing thinking learners who ask questions, analyse and synthesize information.

As the researcher envisaged determining how teaching methods are employed in Social Sciences classrooms to nurture creative thinking, the next chapter, Chapter 3, is devoted to an extensive explanation of various teaching methods and their merits for nurturing creative thinking.

CHAPTER 3

NURTURING CREATIVE THINKING IN THE SOCIAL SCIENCES THROUGH THE CHOICE OF TEACHING METHODS

3.1 INTRODUCTION

In the previous chapter, the concept creativity was explored via an in-depth literature review (*cf.* 2.1, 2.2, 2.3, 2.4, 2.5, 2.6). Furthermore, it was determined how creativity can be fostered within the Social Sciences classroom (*cf.* 2.7, 2.8). This chapter focuses on the concept “teaching methods”, including a variety of teaching strategies that can be employed in the Social Sciences classroom, as well as resources that strengthen and enhance the use of said teaching methods and strategies to nurture creativity.

As this chapter wishes to identify specific teaching methods that can ultimately nurture creative thinking, a distinction first needs to be made between **teaching creatively** and **teaching for creativity**. According to Jeffrey and Craft (2005:77), teaching creatively is defined as using imaginative approaches to make learning more interesting and effective. Teaching for creativity is defined as forms of teaching that are intended to develop young peoples’ own creative thinking or behaviour. Jeffrey and Craft (2005:77) emphasize that teaching creatively may be interpreted as being more concerned with “*effective teaching*” and suggest that teaching for creativity may perhaps be interpreted as having “*learner empowerment*” as its main objective. Teaching for creativity involves teaching creatively, so that young peoples’ creative abilities are most likely to be developed in an atmosphere in which the teacher’s creative abilities are properly engaged (Jeffrey & Craft, 2005:78).

Five main teaching methods/approaches and their related teaching strategies can be identified, namely direct instruction, indirect instruction, independent study, interactive instruction and experiential learning (Killen, 2007:127). It is argued by the researcher that the teacher’s choice of teaching method will influence the nurturing of creative thinking of the learners being taught.

As the researcher involved Private Schools, Ex-Model C Schools and Township Schools in this study, it is essential that one understands the systemic context of schooling in South Africa, as there is a range of historical and political factors that influence the quality of education in this country. *Quality inter alia* points to the nurturing higher-order thinking during teaching. Government policy states that schooling is compulsory between the ages of seven and fifteen, and that all learners are guaranteed access to quality learning. However, the latter part of the statement is undeniably false, as quality education does not yet take place within all levels of schooling (Selod & Zenou, 2003:351-394).

To understand why there is such a discrepancy (some schools performing better than others do) regarding quality teaching within education, we need to look at how schools are classified. There are two types of schools, the first of which is the independent (private) schools which make their own policies, set their own admission requirements and follow their own curriculum (Bisschoff & Koebe, 2005:156-163). These Private Schools are generally considered more elitist, where wealthy parents send their children to get the best education that money can buy. This ultimately results in smaller classroom sizes, as only a wealthy minority has access to these schools. The Private Schools are also known for their abundant access to resources, such as facilities and teaching and learning support material (Taylor, 2006:1-9). This is due to the larger income from school fees as opposed to the public schools, which are run and financed by government (Taylor, 2006:1-9).

The second type of school is the public schools. These schools can be further subdivided into two, namely the Ex-Model C Schools (previously white only schools during the time of Apartheid), and the Township Schools (predominantly black schools situated in the outskirts of towns and cities) (Selod & Zenou, 2003:351-394). At both of these public schools, parents vote on the level of school fees. Poor parents are given exemption or reductions as stipulated by government. These schools must also adhere to the government's requirements regarding which curriculum is to be followed, as well as any policies that need to be implemented. In these schools, the majority of the country's children attend classes, which results in an

overcrowded environment in many of these public schools. Classroom sizes can exceed 50 learners per class, which also has a negative effect on teaching and learning (Smit & Oosthuizen, 2011:55-73).

What should be noted are the differences between the so-called Ex-Model C Schools and the Township Schools (Taylor, 2006:1-9). The Ex-Model C Schools are generally in a much better financial position than those schools in the townships, as they have better facilities, more classrooms and have access to better teaching and learning support material (Bisschoff & Koebe, 2005:156-163). This is due to a variety of factors, one of the most important being historical. Therefore, with this in mind, it is noted by Taylor (2006:1-9) that the Township Schools are usually considered to be underperforming schools, where low matriculation marks are seen, as well as sub-par teaching and learning occurring in the classroom, although there are exceptions to this (Taylor, 2006:1-9).

According to the researcher, the systemic context as highlighted above can ultimately influence the nurturing of creative thinking in many ways. If the conditions are not suitable at a particular school, where there are fewer resources due to lack of funding, it could negatively affect the learners' elaborative thinking. If teachers struggle to teach large numbers, they might resort to more traditional teaching methods that focus on behaviour modification, and avoid teaching methods that promote learner activity and involvement that could create disciplinary problems. This traditional approach could impede learner fluency, as the teachers will only focus on the basic knowledge to avoid learner interaction. Learner originality might also be restricted as the classroom climate will most likely be very restrictive, and not open to advance the intellectual growth of learners.

It is important to look at how the experience level of a teacher could have an impact on his/her performance during teaching, especially when it comes to selecting teaching methods. Teacher experience and teacher education level have been viewed as two characteristics that are related to the quality of teaching (Goldhaber & Brewer, 2000:129-145). They may also be viewed as important criteria in selecting teachers, serving as proxy variables for skill level or expertise. Research on the impact of teaching experience and teacher

education level of both primary and secondary education teachers on learner achievement has a long history, beginning in the 1960s, (Rice, 2003:15-18).

According to Greenberg *et al.* (2004), teacher experience is a topic of potential concern to policymakers as experienced teachers have more opportunities to teach higher level or advanced classes, and thus have higher achieving learners in their classrooms. Thus, it is possible that learners who are performing badly are more likely to be at a disadvantage because they are more likely to be taught by less experienced teachers (Greenberg *et al.*, 2004).

According to Goldhaber and Brewer (2000:129-145), the experience level of a teacher can also affect the choice of teaching methods. The more experienced teachers, due to their many years of teaching, are seen as having higher skill sets than the inexperienced teachers, implying that those who have worked for many years are more capable of employing a variety of teaching methods effectively (Goldhaber & Brewer, 2000:129-145). Ultimately, the use of more teaching methods could result in the nurturing of creative thinking, as only making use of one method will hamper its development. This is not to say that inexperienced teachers cannot make use of diverse methods, but it has been found that those without experience tend to struggle when trying something new or different to their normal teaching methods (Goldhaber & Brewer, 2000:129-145). If teachers are struggling with new methods, it will also lead to the hampering of creative thinking, as these methods need to be employed properly for the desired result to take place, which is ultimately the nurturing of creative thinking.

Another area for concern implicates experienced teachers falling into a comfort zone with their teaching style and therefore opting not to change their methods (Greenberg *et al.*, 2004). This happens when teachers, who have been teaching for many years, generally over ten years or more, begin to fall into a routine with regard to the particular teaching methods that they prefer. They become accustomed to those methods that work for them and do not wish to employ variation, as it could disrupt the routine (Rice, 2003:15-18). If teachers fall into this comfort zone, it will hamper the nurturing of creative

thinking, as teachers will not want to try anything different or new, thus impeding flexibility and originality.

This particular section on teacher experience will be addressed in the qualitative section of the empirical study, as teacher interview participants were asked how many years of experience they had, to understand whether or not experience could possibly influence the choice of teaching methods.

The chapter will unfold according to the following outline:

- Teaching styles, teaching methods, teaching strategies and techniques
- Direct Instruction
- Indirect Instruction
- Independent Instruction
- Interactive Instruction
- Experiential Learning
- Teaching methods and strategies for nurturing creative thinking in the Social Sciences
- The use of resources in the Social Sciences classroom

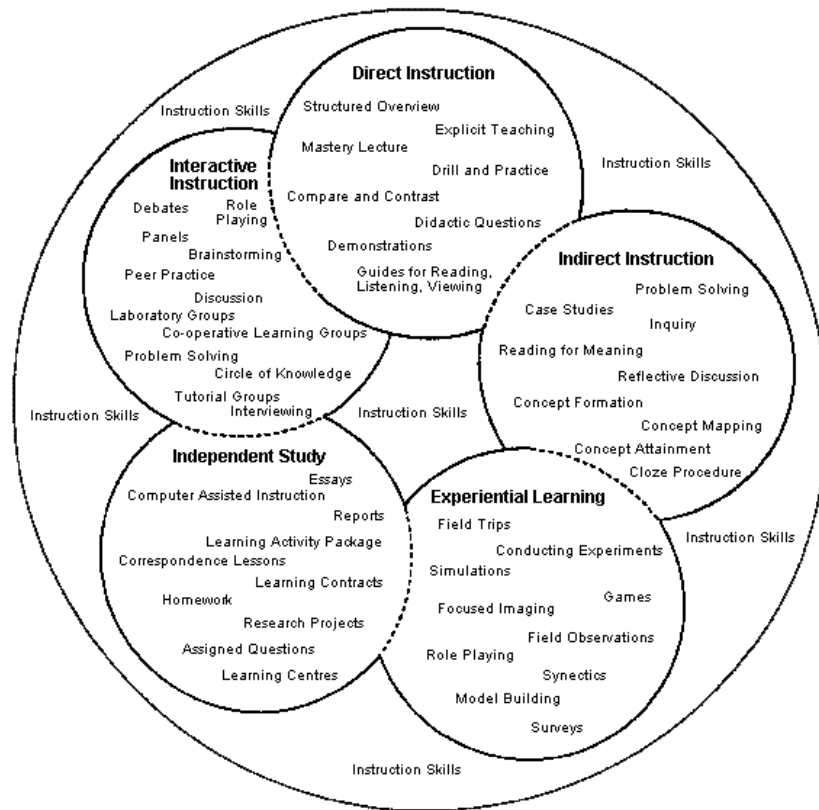
To expand further on the topic of teaching methods, a distinction needs to be made between teaching styles, teaching methods and teaching strategies. The following section seeks to distinguish between those concepts.

3.2 TEACHING STYLES, TEACHING METHODS AND TEACHING STRATEGIES

To begin a discussion involving teaching styles, teaching methods and teaching strategies, an overview of the instructional framework in a classroom needs to be given to understand the emanating constructs involved clearly.

Figure 3.1 provides an overview of instructional practices that were regarded as important in the context of the study. Teaching styles refer to the teaching approach used, which could be either a transmission and reception style or a facilitation style. These two differing styles in teaching can then be separated further into various teaching methods and strategies that subscribe to either

teacher or learner-centred education (Killen, 2007:127). Figure 3.1 highlights the various teaching methods (Direct instruction, Indirect instruction, Independent instruction, Interactive instruction, Experiential learning) available, as well as their related teaching strategies.



<http://www.sasked.gov.sk.ca/docs/native10/images/Image18jpg>

Figure 3.1: Teaching methods and underlying strategies

Teaching methods, as seen from Figure 3.1, is an umbrella term that incorporates multiple strategies that can be used by the teacher to teach in the classroom. They incorporate either teacher-centred methods or learner-centred methods. The research will be focusing on five specific teaching methods, namely direct instruction, indirect instruction, independent study, interactive instruction and experiential learning. Each approach will be examined to establish whether the approach can ultimately nurture creative thinking in the Social Sciences classroom.

In order to determine how creative thinking is nurtured, the researcher looks at the application of different teaching strategies that can be employed within the different teaching methods.

The next section seeks to clarify the teaching method of direct instruction.

3.3 DIRECT INSTRUCTION

According to Burden and Byrd (2003:120), Gunter *et al.* (2010:70-84), Kramer (2006:100), Monyai (2006:107-109) and Tuovinen and Sweller (1999:334), direct instruction is a broad method for the clear instruction of a skill-set by means of lectures or demonstrations of the material, rather than exploratory models such as inquiry-based learning (Arends, 2004:293).

3.3.1 Learning theory underpinning direct instruction

Direct Instruction is underpinned by behaviourist learning theory. Behaviourism as a theory was primarily developed on three basic assumptions (Arends, 2004:293; Skinner, 1984:547). Firstly, learning is manifested by a change in behaviour. Secondly, the environment shapes behaviour. Thirdly, the principles of contiguity (how close in time two events must be for a bond to be formed) and reinforcement (any means of increasing the likelihood that an event will be repeated) are central to explaining the learning process (Arends, 2004:293; Skinner, 1984:547). For Behaviourism, learning is the acquisition of new behaviour through conditioning. There are two types of possible conditioning, namely:

- classical conditioning, where the behaviour becomes a reflex response to stimulus, and
- operant conditioning, where there is reinforcement of the behaviour by a reward or a punishment.

The next section identifies the epistemological approach to knowledge acquisition during direct instruction.

3.3.2 Epistemological approach to knowledge acquisition

Direct instruction is framed within a realist epistemological approach (Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299). The realist worldview assumes that there is an objective body of knowledge that is best

acquired through experts via transmission and reconstruction (Weinert & Helmke, 1995:135). This knowledge is agreed upon by experts and is relatively unchanging (Schraw & Olafson, 2003:180).

Teachers with a realist worldview teach actively to learners who are viewed as passive recipients of a pre-established knowledge base, downplaying the role of peers (Andersen *et al.*, 1996:5; Mayer, 1996:151; Rosenshine *et al.*, 1996:181). Realists also emphasize the role of deliberate practice (i.e. systematic daily practice under the tutelage of an expert) to acquire high levels of skill in a domain (Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299).

Realist teachers are apt to use norm-referenced assessments such as standardized tests because they are interested in comparing learners with respect to how much of the pre-established curriculum they have learned (Schraw & Olafson, 2003:181). Additionally realist teachers are apt to use assessments that are developed externally by publishers of their adopted instructional programmes, for example the end-of-unit tests provided in social studies textbooks (Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299).

The next section identifies the specific teaching style of direct instruction, as well as briefly discussing the main related teaching strategies.

3.3.3 Teaching style

Direct instruction makes use of the transmission-reception teaching style (*cf.* Figure 3.1), as the main mode of instruction focuses on teachers transmitting information and knowledge to recipient learners. It is thus obviously highly teacher-centred and in contrast to the more constructivist facilitation teaching style (Arends, 2004:293; Tuovinen & Sweller, 1999:334). While often overused, it is an effective instructional strategy when the teacher's goal is to:

- provide information;
- teach standard procedures; and
- develop step-by-step skills (Arends, 2009:290-295; Burden & Byrd, 2003:120; Kramer, 2006:100; Monyai, 2006:107-109; Tuovinen & Sweller, 1999:335)

Direct instruction involves the use of the following strategies.

Demonstrations (cf. 3.8.3)

Demonstration involves showing by reason or proof, explaining or making clear by use of examples or experiments. Put more simply, demonstration means to show clearly (McKee *et al.*, 2007:395; Monyai, 2006:110-112). In teaching through demonstration, learners are set up to conceptualize class material more effectively (Bruce *et al.*, 2009; Monyai, 2006:110-112).

Didactic questions (cf. 3.8.15)

Didactic questions tend to be convergent, factual and often begin with “what,” “where,” “when” and “how.” These may also include “why” and “what if” questions (Arends, 2004:293; McNeill & Wiles, 1990:13).

Drill-and-practice (cf. 3.8.2)

Drill-and-practice refers to the structured, repetitive review of previously learned concepts in order to increase the level of mastery (Tournaki, 2003:449).

Explicit teaching

Explicit teaching involves six teaching functions, namely: daily review of work, presenting new material, then conducting guided practice, afterwards providing feedback, conducting independent practice and lastly to review work weekly and monthly (Boyles, 2004:2).

Mastery lecture

Mastery lecture is a method used to deliver significant amounts of information in a relatively short period. The quality of a lecture may be improved by incorporating audio-visual aids and encouraging interaction between the teacher and the learners (Bligh, 2000:4).

Structured overview

Structured overview involves organizing concepts and materials in a manner that is easily understood by learners (Wolfe & Lopez, 1993:315). The concepts are organized in a hierarchical structure, beginning with the topic heading. Lines connect the words or subtopics, showing their relationship to

the central idea and to each other. The conceptual map is like a tree diagram with the most general terms at the top, moving down to the details or examples at the bottom (Boyles, 2004:2).

When used appropriately, direct instruction enables the teacher to communicate complex knowledge and information at the learners' level (Arends, 2004:293; Monyai, 2006:107-109; Tuovinen & Sweller, 1999:336). Direct instruction also allows the teacher to present information that is not readily available to the learners from other sources or by other means (Gunter *et al.*, 2010:70; Monyai, 2006:107-109; Tuovinen & Sweller, 1999:336).

It may also be an excellent way for a teacher to communicate enthusiasm for the subject and arouse the learners' interest. A teacher may use direct instruction to focus the learners' attention on relevant content and to assist the learners in connecting new information to current knowledge and experiences (Gunter *et al.*, 2010:70; Monyai, 2006:107-109; Tuovinen & Sweller, 1999:336).

According to the researcher, the greatest disadvantage of direct instruction is possibly the inappropriate use of the methods and that teachers fail to realise that there are limitations to the use of direct instruction. Furthermore, the researcher argues that direct instruction is limited in its ability to help learners to develop their abilities to think critically and creatively fully and to work well in a group setting, as it is primarily a teacher-centred method of instruction, placing the burden of developing creative potential in the learners solely on the teacher's shoulders. It can also create passive learners who do not take part in the learning process, which is not conducive to the nurturing of creative thinking. Thus, direct instruction should be seen as only one teaching method that may be effectively employed by teachers (Arends, 2004:293; Monyai, 2006:107-109; Tuovinen & Sweller, 1999:336).

The next section explores the nature of teaching and learning environments where indirect instruction is used.

3.4 INDIRECT INSTRUCTION

In comparison with the direct instruction method, indirect instruction is primarily learner-centred (Borich, 2003:94; Kramer, 2006:101) (*cf.* Figure 3.1).

Indirect instruction strives for a great level of learner involvement in observing, investigating, drawing inferences from data, or forming hypotheses. It takes advantage of learners' interests and curiosity, frequently encouraging them to produce alternatives or solve problems (Arends, 2004:255; Borich, 2007:12; Kramer, 2006:101).

3.4.1 Learning theory underpinning indirect instruction

Indirect instruction is framed within the constructivist learning theory, which views learning as a process in which the learner actively constructs or builds new ideas or concepts based upon current and past knowledge or experience (Kim, 2005:7). In other words, "*learning involves constructing one's own knowledge from one's own experiences*" (Kim, 2005:7). Constructivist learning, therefore, is a very personal endeavour, whereby internalized concepts, rules and general principles may consequently be applied in a practical real-world context. Kim (2005:8) asserts that the teacher acts as a facilitator who encourages learners to discover principles for themselves and to construct knowledge by working to solve realistic problems.

The next section identifies the epistemological approach to knowledge acquisition during indirect instruction.

3.4.2 Epistemological approach to knowledge acquisition

Indirect instruction is framed within a relativist epistemological approach that assumes that each learner constructs a unique knowledge base that is different but equal to that of other learners (Schraw & Olafson, 2003:180). Knowledge is subjective and highly changeable (Bruner, 1961:21; Cobern, 2000:219; Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299).

Schraw and Olafson (2003:182) argue that relativists believe strongly in the primacy of the learner; thus, peers are important in the classroom only to the extent that they model or promote self-regulation for other learners. Teachers rely on criterion-based assessments tailored to each learner's individual needs. Of equal importance are learner self-assessments, perhaps in the form of self-generated feedback.

The next section identifies the specific teaching style of indirect instruction, as well as briefly discussing the related teaching strategies.

3.4.3 Teaching style

Indirect instruction involves the facilitation teaching style, which aims to foster learner understanding and participation (Kramer, 2006:101). This is why indirect instruction is considered a learner-centred approach and the opposite of the transmission-reception teaching style (Borich, 2007:12).

According to Borich (2007:12), indirect instruction is a learner-centred teaching method, which promotes learner involvement in the learning process and in doing so, fosters true learning for understanding. Because of its Constructivist nature, indirect instruction has the advantage of making the learner an active learner. Learning is something that is done by the learner, not done to the learners, as the teacher moves from the role of instructor to one of facilitator (Borich, 2007:12; Arends, 2004:255).

Indirect instruction includes the following among its strategies:

Case study (cf. 3.8.5)

A case study is a strategy that is common in Social Sciences. It is based on an in-depth investigation of a single individual, group or event (Monyai, 2006:118-120; Yin, 2009:37). Case studies may be descriptive or explanatory. The latter type is used to explore causation in order to find underlying principles (Shepard & Greene, 2003:22; Monyai, 2006:118-120).

Cloze procedure

According to Chatel (2001:3-6), cloze procedure is a technique in which words are deleted from a passage according to a word-count formula or various other criteria. The passage is presented to learners, who insert words as they read to complete and construct meaning from the text. This procedure can be used as a diagnostic reading assessment technique (Chatel, 2001:3-6).

Concept attainment

Concept attainment is based on the works of Jerome Bruner, who argued that concept attainment is *"the search for and listing of attributes that can be used to distinguish exemplars from non-exemplars of various categories"* (Bruner et al., 1967:233; Gunter et al., 2010:89-97).

According to Joyce and Weil (2000:146), concept attainment requires a learner to establish the attributes of a category that is already formed in another person's mind by comparing and contrasting examples that contain the characteristics of the concept with exemplars that do not contain those attributes.

Concept formation/development

According to Gunter *et al.* (2010:109,110) and Joyce and Weil (2000:147) concept formation provides learners with an opportunity to explore ideas by making connections and seeing relationships between items of information. This strategy can help learners develop and refine their ability to recall and discriminate among key ideas, to see commonalities and identify relationships, to formulate concepts and generalizations, to explain how they have organized data, and to present evidence to support their organization of the information involved (Gunter *et al.*, 2010:109,110; Joyce & Weil, 2000:147).

Concept mapping

A concept map is a diagram showing the relationships among concepts. Concepts maps are graphical tools for organizing and representing knowledge (Novak& Cañas, 2006:56). For Novak and Cañas (2006:56) concepts, usually represented as boxes or circles, are connected with labelled arrows in a downward-branching hierarchical structure. The relationship between concepts can be articulated in linking phrases such as "*gives rise to*", "*results in*", "*is required by*," or "*contributes to*". The technique for visualizing these relationships among different concepts is called "*concept mapping*" (Novak & Cañas, 2006:56).

Problem solving (cf. 3.8.4)

Problem solving is the ability to identify and solve problems by applying appropriate skills systematically (Loyens *et al.*, 2008:411; Monyai, 2006:114-118; Morrison *et al.*, 2011:312). Problem solving presupposes that learners can take on some of the responsibility for their own learning and can take personal action to solve problems, resolve conflicts, discuss alternatives and focus on thinking as a vital element of the curriculum (Loyens *et al.*, 2008:414;

Monyai, 2006:114-118; Morrison *et al.*, 2011:312). According to the researcher, problem solving provides learners with opportunities to use their newly acquired knowledge in meaningful, real-life activities and assists them in working at higher levels of thinking.

Reading for meaning

According to Miller (2002:16), reading for meaning is an indirect instructional strategy in which the reader reads with the intent of understanding the information presented; that is, the reader interprets the material to construct meaning within the context of the text. A key part of this process is making connections between what is already known and what is new (Miller, 2002:16).

Because indirect instruction is learner-centred, it may take more class time to accomplish learning goals than when direct instruction is utilized (Arends, 2004:255). As facilitator, the teacher must give control of the learning to the learners, which may initially make the teacher feel uncomfortable. There is also more of a challenge involved in ensuring that the learners do accomplish the required learning objectives/outcomes (Borich, 2007:13). In support of Borich (2007:13), the researcher argues that indirect instruction enhances creative thinking and helps to develop problem solving skills. Its resource-based nature brings depth and breadth to the learning experience, which aids in the enhancement of creative elaboration.

The next section clarifies the nature of teaching and learning environments where independent instruction is used.

3.5 INDEPENDENT INSTRUCTION

According to Borich (2007:17), Ognibene (2007:24-27) and Philpott (2009:38,47), independent instruction denotes the variety of instructional strategies/techniques which are purposefully provided to enhance the development of individual learner initiative, self-reliance and self-improvement.

3.5.1 Learning theory underpinning independent instruction

Independent instruction is framed within the cognitivist learning theory (Wallace *et al.*, 2007:128). Cognitivist views of learning have been incorporated into what have come to be labelled cognitive theories. Two key assumptions underlie this cognitive approach: firstly that the memory system is an active organized processor of information and secondly that prior knowledge plays an important role in learning (Wallace *et al.*, 2007:128).

According to Wallace *et al.* (2007:128), cognitive theories look beyond behaviour to explain brain-based learning. Cognitivists consider how human memory works to promote learning. For example, the physiological processes of sorting and encoding information and events into short-term memory and long-term memory are important to teachers working under the Cognitive theory.

The major difference between cognitivists and behaviourists is the locus of control over the learning activity: equipping the learner with cognitive skills to select and evaluate information is a key feature to cognitivist teaching and learning in contrast to the manipulated environment that behaviourists emphasize (Wallace *et al.*, 2007:128).

The next section identifies the epistemological approach to knowledge acquisition of the independent teaching method.

3.5.2 Epistemological approach to knowledge acquisition

Independent instruction supports the relativist epistemological approach, which assumes that each learner constructs a unique knowledge base that is different but equal to that of other learners (Schraw & Olafson, 2003:182). Knowledge is subjective and highly changeable (Bruner, 1961:21; Cobern, 2000:219; Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299).

Schraw and Olafson (2003:184) indicate that teachers with relativist worldviews deny the primacy of their own knowledge and emphasize their role in creating an environment where learners can learn to think independently. Their main goal is to promote learner self-regulation, which enables learners to learn autonomously in the future.

The next section clarifies the teaching style of independent instruction, and briefly discusses the related teaching strategies.

3.5.3 Teaching style

Independent instruction is characterized by a facilitation teaching style, which aims to foster learner understanding and participation (*cf.* Figure 3.1). Independent instruction is considered a learner-centred approach, as the learners need to conduct independent self-study. Facilitation is the opposite of the transmission-reception teaching style that lacks the development of learner independence (Borich, 2007:17).

According to Borich (2007:17), independent learning involves planned independent study by learners under the guidance or supervision of a classroom teacher. Independent study is an important instructional approach because it is designed to foster self-sufficiency and the acquisition of lifelong learning skills (Borich, 2007:17).

Independent teaching may involve the use of one or more of the following strategies:

Assigned questions

Assigned questions are those prepared by the teacher to be answered by individuals or small groups of learners (Prince & Felder, 2006:123). Learners discuss their responses among one another or with the teacher. Particular positions or points-of-view should be supported by evidence. In some instances, it may be desirable for learners to generate their own set of questions (Prince & Felder, 2006:123).

According to Prince and Felder (2006:123), this instructional strategy is effective when questions are well phrased so that answering involves more than mechanical searching and copying from a book or other reference. It can be an efficient way for the teacher to introduce or review facts, concepts, generalizations, arguments and points-of-view. Well-selected assigned questions can stimulate higher-level thinking, problem solving, decision-making, and personal reflection (Prince & Felder, 2006:124). Questions should allow for multiple responses. Because learner abilities and learning

styles differ, this method may require some adaptation in order to maximize learning for all learners (Prince & Felder, 2006:124).

Computer-assisted instruction

Computer-assisted instruction (CAI) refers to instruction or remediation presented on a computer (De Beer, 2010:131; Van Rooyen & Van der Merwe, 2008:254). Computer programmes can allow learners to progress at their own pace and work individually or solve problems in a group. Computers provide immediate feedback, letting learners know whether their answer is correct. If the answer is not correct, the programme shows learners how to answer the question correctly. Computers offer a different type of activity and a change of pace from teacher-led or group instruction. In addition, computer-assisted instruction moves at the learners' pace and usually does not move ahead until they have mastered the skill (De Beer, 2010:131; Sessoms, 2008:86; Van Rooyen & Van der Merwe, 2008:254).

Essays (cf. 3.8.9)

For Warburton (2006:25), an essay is a piece of writing which is often written from an author's personal point of view. Essays can consist of a number of elements, including: literary criticism, political manifestos, learned arguments, observations of daily life, recollections and reflections of the author.

Essays have become a major part of formal education. Secondary learners are taught structured essay formats to improve their writing skills, and admission essays are often used by universities in selecting applicants and, in the humanities and Social Sciences, as a way of assessing the performance of learners during final exams (Warburton, 2006:27).

Homework (cf. 3.8.7)

Homework or homework assignments refer to tasks assigned to learners by their teachers to be completed mostly outside the class, and derives its name from the fact that most learners do the majority of such work at home (Bennett & Kalish, 2006:12). Bennet and Kalish (2006:13) are of the opinion that common homework assignments may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a

school project to be built (such as a diorama or display) or other skills to be practised.

Research projects (cf. 3.8.8)

Freiberg (2002:56) indicates that research projects are very effective for developing and extending language arts skills as learners learn in all subject areas. While doing research, learners practise reading for specific purposes, recording information, sequencing and organizing ideas, and using language to inform others (Freiberg, 2002:56).

Learners involved in independent learning are often highly motivated by the opportunity to explore topics that are of interest to them. Learners can capitalize on their strengths while improving areas of weakness. Independent study is especially valuable in a classroom where learners' knowledge, skills and abilities vary widely (Borich, 2007:18).

According to Borich (2007:18), for independent study to be successful, learners require a degree of maturity and the ability to work with a minimum of supervision. Independent study is most effective when the teacher accurately assesses the learners' abilities to take on the responsibility for learning and assists the learners in structuring tasks and projects of appropriate difficulty for each individual learner.

According to the researcher, independent instruction can indeed foster creative thinking. The researcher is of the opinion that if homework questions and assignments are structured and phrased correctly (according to Bloom's Taxonomy), they can lead to learners developing new ideas, being original and elaborating on their own thinking.

The next section elucidates on the use of interactive instruction as a teaching method.

3.6 INTERACTIVE INSTRUCTION

According to Sessoms (2008:88), interactive instruction depends greatly on discussion and sharing among participants. Learners can learn from peers and teachers to improve social skills and abilities, to consolidate their thoughts and to develop rational arguments (Arends, 2004:255; Kramer, 2006:104).

3.6.1 Learning theory underpinning interactive instruction

Interactive instruction could also be linked with the learning theory of Constructivism. Constructivism regards learning as a process in which the learner actively constructs or builds new ideas or concepts based upon current and past knowledge or experience (Kim, 2005:7).

In line with the view of social constructivists, interactive teaching supports the view that knowledge is constructed when individuals engage socially in talk and activity about shared problems or tasks (Maxim, 2010:315; Powell & Kalina, 2011:241). Learning is seen as the process by which individuals are introduced to a culture by more skilled members (Maxim, 2010:315; Powell & Kalina, 2011:241). The teacher thus acts as a facilitator who encourages learners to discover principles for themselves and to construct knowledge by working to solve realistic problems.

The next section identifies the epistemological approach to knowledge acquisition of interactive instruction.

3.6.2 Epistemological approach to knowledge acquisition

Interactive instruction supports a contextualist worldview, according to which it is assumed that learners construct shared understanding in collaborative contexts in which teachers serve as facilitators (Hung, 1999:193; Johnston *et al.*, 2001:5-33; McCaslin & Hickey, 2001:133; Schraw & Olafson, 2003:184; Sing & Khine, 2008:287-299; Werstchet *et al.*, 1995:50).

Teachers with a contextualist worldview are not only concerned with the type of knowledge that learners construct, but with the process they use to construct that knowledge, and the degree to which that knowledge has authentic application to the context it is learned in and their day-to-day life (Glassman, 2001:3).

Contextualists assume that knowledge will change over time and that learners need skills to acquire new knowledge on their own. Teachers with a contextualist worldview promote peer support and expert scaffolding in their classrooms. They are apt to use authentic assessments that match cooperative learning activities (Schraw & Olafson, 2003:184).

The next section deals with the specific teaching style of interactive instruction, as well as briefly discussing the related teaching strategies.

3.6.3 Teaching style

Interactive instruction is characterized by a facilitation teaching style, which aims to foster learner understanding and participation (*cf.* Figure 3.1). It is considered a learner-centred approach, as the learners need to interact with one another. Facilitation is the opposite of the transmission-reception teaching style that regard learners as passive recipients of information (Kramer, 2006:104; Ognibene, 2007:30; Sessoms, 2008:89).

According to Arends (2009:418), Sessoms (2008:89) and Van Rooy (2006:85), interactive instruction provides opportunities for learners to interact with peers, experts and their teachers in such a manner as to improve their social skills, as well as their abilities to assess information and structure an effective response to the information. The interaction is often highly motivating for learners.

Learners working in groups provide another way a teacher can implement a lesson. Collaborating allows learners to talk among one another and listen to all viewpoints of discussion or task (Arends, 2009:418-438; Sessoms, 2008:90). It assists learners to think in an impartial way. When this lesson is carried out, the teacher may be trying to assess the lesson of working as a team, leadership skills or presenting with roles (Monyai, 2006:124-129).

Interactive instruction may include the following among its strategies:

Brainstorming

Brainstorming is a large or small group activity, which encourages children to focus on a topic and contribute to the free flow of ideas (Furnham & Yazdanpanahi, 1995:73; Monyai, 2006:120-121; Santanen *et al.*, 2004:167-198). The teacher may begin by posing a question or a problem, or by introducing a topic. Learners then express possible answers, relevant words and ideas. Contributions are accepted without criticism or judgment. Initially, some learners may be reluctant to speak out in a group setting, but brainstorming is an open sharing activity, which encourages all children to participate (Furnham & Yazdanpanahi, 1995:75; Monyai, 2006:120-121;

Santanen *et al.*, 2004:167-198). By expressing ideas and listening to what others say, learners adjust their previous knowledge or understanding, accommodate new information and increase their levels of awareness (Furnham & Yazdanpanahi, 1995:75; Monyai, 2006:120-121; Santanen *et al.*, 2004:167-198).

Cooperative learning groups (cf. 3.8.11)

Cooperative learning is an approach to organizing classroom activities into academic and social learning experiences (Chiu, 2004:365; Monyai, 2006:124-129). Cooperative learning is a form of group work with the emphasis on cooperation to reach a common goal. It requires every learner to be involved in his/her own learning process and also takes responsibility for the other members of the group to learn (Joubert *et al.*, 2008:5; Monyai, 2006:124-129). Learners must work in groups to complete tasks collectively. Unlike individual learning, learners learning cooperatively capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work). Furthermore, the teacher's role changes from giving information to facilitating learners' learning. Everyone succeeds when the group succeeds (Chiu, 2004:372; Monyai, 2006:124-129).

Debate (cf. 3.8.14)

According to Darby (2007:78-89) and Machiette (2009:12-15), debating is a structured contest of argumentation in which two opposing individuals or teams defend and attack a given proposition. The procedure is bound by rules that vary based on location and participants. The process is adjudicated and a winner is declared (Machiette, 2009:12-15).

The intent of the strategy is to engage learners in a combination of activities that cause them to interact with the curriculum. Debate forces the participants to consider not only the facts of a situation, but the implications as well. Participants think critically and strategically about both their own and their opponent's position (Machiette, 2009:12-15). The competitive aspects encourage engagement and a commitment to a position.

Discussion (cf. 3.8.10)

A discussion is an oral exploration of a topic, object, concept or experience (Arends, 2009:418-438; Gunter *et al.*, 2010:190-191). All learners need frequent opportunities to generate and share their questions and ideas in small and whole class settings (Arends, 2009:418-438). Teachers who encourage and accept learners' questions and comments without judgment, and clarify understandings by paraphrasing difficult terms stimulate the exchange of ideas (Gunter *et al.*, 2010:190-191).

Problem solving

Regardless of the type of problem solving a class uses, problem solving focuses on knowing the issues, considering all possible factors and finding a solution (Loyens *et al.*, 2008:414; Monyai, 2006:114-118; Morrison *et al.*, 2011:312). Because all ideas are accepted initially, problem solving allows for finding the best possible solution as opposed to the easiest solution or the first solution proposed (Monyai, 2006:114-118; Morrison *et al.*, 2011:312). According to Van Rooy (2006:105), problem solving assists learners to gain new knowledge and to feel responsible for their own learning, teaches learners to identify appropriate solutions to problems and keep learners' curiosity alive.

The opportunity to interact with others broadens the educational experience of the learners and takes them beyond the limitations of the traditional classroom and the knowledge, skills and abilities of the individual teacher (Sessoms, 2008:89).

According to Sessoms (2008:89), the challenge of using interactive instruction is that the success of the interactive instruction strategy and its many methods is severely reliant on the capability of the teacher in structuring and developing the dynamics of the group.

The researcher argues that interactive instruction can most definitely develop creative thinking within the Social Sciences classroom. The specific strategies used, such as debates and role-plays, allow learners to think on higher levels, to generate ideas and arguments and to be original. This method relies

heavily on learner interaction; therefore, a greater emphasis will be placed on group creativity.

3.7 EXPERIENTIAL LEARNING

According to Merriam *et al.* (2007:155), experiential learning is the process of making meaning from or learning from direct experience. The experience can be staged or left open. Experiential learning is learning through reflection on doing, which is often contrasted with rote or didactic learning (Merriam *et al.*, 2007:155).

Stavenga de Jong *et al.* (2006:169) assert that experiential learning focuses on the learning process for the individual and therefore one makes discoveries and experiments with knowledge first-hand, instead of hearing or reading about others' experiences. Experiential learning requires no teacher and relates solely to the meaning-making process of the individual's direct experience (Stavenga de Jong *et al.*, 2006:169).

3.7.1 Learning theory underpinning experiential learning

Experiential learning is framed within the constructivist learning theory, which views learning as a process in which the learner actively constructs or builds new ideas or concepts based upon current and past knowledge or **experience** (Kim, 2005:7). In other words, learning involves constructing one's own knowledge from one's own experiences (Kim, 2005:7). Constructivist learning is therefore a very personal endeavour, whereby internalized concepts, rules and general principles may consequently be applied in a practical real-world context. Kim (2005:8) asserts that the teacher acts as a facilitator who encourages learners to discover principles for themselves and to construct knowledge by working to solve realistic problems. The next section identifies the epistemological approach to knowledge acquisition during experiential learning.

3.7.2 Epistemological approach to knowledge acquisition

Experiential learning is framed within a relativist and contextual epistemological approaches that assume that each learner constructs a unique knowledge base that is different but equal to that of other learners

(Schraw & Olafson, 2003:180). In addition, learners can also construct knowledge socially with their peers (Schraw & Olafson, 2003:184). Knowledge is therefore subjective and highly changeable (Bruner, 1961:21; Cobern, 2000:219; Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299).

Schraw and Olafson (2003:182, 184) argue that relativists and contextualists believe strongly in the primacy of the learner; thus, peers are important in the classroom only to the extent that they model or promote self-regulation for other learners. Teachers rely on criterion-based assessments tailored to each learner's individual needs. Of equal importance are learner self-assessments, perhaps in the form of self-generated feedback.

The next section identifies the specific teaching style of experiential learning, as well as briefly discussing the related teaching strategies.

3.7.3 Teaching style

Experiential learning involves the facilitation teaching style, which aims to foster learner understanding and participation (Kramer, 2006:101). This is why experiential learning is considered a learner-centred approach and the opposite of the transmission-reception teaching style that does not purposefully advance active and interactive learning (Borich, 2007:12).

Experiential learning includes the following among its strategies:

Surveys / interviewing

Surveys as a teaching strategy are a cooperative structure that helps learners personalize their learning and listen to and appreciate the ideas and thinking of others (Lipton & Wellman, 1998:12). Active listening and paraphrasing by the interviewer develops understanding and empathy for the thinking of the interviewee (Leedy & Ormrod, 2005:146-150). The purpose of interviewing is to engage learners in conversation for the purpose of analysing and synthesizing new information (Lipton & Wellman, 1998:14).

Role-plays (cf. 3.8.12)

In role-playing, learners act out characters in a predefined "situation" (Monyai, 2006:122-124). Role-playing allows learners to take risk-free positions by acting out characters in hypothetical situations (Fogg, 2001:12; Monyai,

2006:122-124). It can help them understand the range of concerns, values, and positions held by other people. Role-playing is an enlightening and interesting way to help learners see a problem from another perspective, thus enhancing creative thinking (Fogg, 2001:13; Monyai, 2006:122-124).

Field trips (cf. 3.8.13)

According to Killen (2007:50), field trips are a structured activity that occurs outside the classroom. It can be a brief observational activity or a longer more sustained investigation or project. Field trips offer an opportunity for learners to get exposure to "real" people and events and the opportunity to make connections with others. Learners on field trips visit people and places that they are not normally exposed to during the school day (Killen, 2007:50).

Simulations

A simulation is a form of experiential learning (cf. Figure 3.1). According to Orlich *et al.* (2004:20), simulations are instructional situations where the learner is placed in a "world" defined by the teacher. They characterize a reality within which learners interact. The teacher controls the strictures of this "world" and uses it to attain the desired instructional outcomes. Simulations are, in a way, a lab experiment where the learners themselves are the test subjects. The learners experience the reality of the situation and accumulate meaning from it. The use of simulations fits well with the principles of Constructivism.

The researcher is of the opinion that simulations promote the use of critical and evaluative thinking. The ambiguous or open-ended nature of a simulation promotes learners to anticipate the consequences of a scenario. The situation feels real and thus leads to more engaging interaction by learners. Simulations are motivating activities enjoyed by learners of all ages (Merriam *et al.*, 2007:155).

Experiential learning creates an opportunity for learners to engage and to apply academic understandings through hands-on experience, while simultaneously learning new information about the world around them. Learners therefore also take responsibility for their own learning and it creates a more rewarding school experience (Merriam *et al.*, 2007:155).

In summary, all the above-mentioned teaching methods (direct, indirect, independent, interactive and experiential instruction) are important for the nurturing of creative thinking. All of these methods should be utilized effectively, and one method should not predominantly stand out or be overused to the detriment of the rest. That being said, however, according to the researcher, there are certain learning theories and epistemologies that are incompatible with the nurturing of creative thinking. The learning theory that supports creative thinking would be Constructivism and Cognitivism, as they promote the development of thinking skills and active and interactive learning. Behaviourism is completely incompatible in this regard, as the learner plays a more passive role and is expected to respond to stimulation given. The relativist and contextualist views on knowledge acquisition both lead to the nurturing of creative thinking, as they regard knowledge as subjective and dynamic, whereas the realist epistemology is in total opposition with its view of knowledge being objective and cast in stone.

The next section focuses on specific teaching strategies that can be employed within the Social Sciences classroom. The previous discussion pertained to a brief and general overview of the strategies linked to a specific teaching approach. The next section will link to the previous section, by extending the previous discussion and emphasising the merits of certain strategies for the Social Sciences classroom.

The discussion also lists advantages of using a specific strategy, to highlight the importance of making use of all the strategies in the Social Sciences classroom in order to nurture creative thinking effectively. Following from this, examples of how these strategies can be employed within the Social Sciences classroom will be looked at.

3.8 TEACHING METHODS AND STRATEGIES FOR NURTURING CREATIVE THINKING IN THE SOCIAL SCIENCES

According to the National Council of Education Research and Training in New Dheli (2006:8), Social Sciences teaching needs to be revitalized towards helping the learner acquire knowledge and skills in an interactive environment. The researcher therefore argues that the teaching of Social Sciences must

implement strategies that promote creative thinking, aesthetics and critical perspectives, and allow learners to describe relationships between past and present, to comprehend changes taking place in the world. Problem solving, dramatization and role-play are some previously under-explored strategies that must be employed (National Council of Education Research and Training, 2006:8).

In order to make the course of learning participative there is a need to move from the simple imparting of knowledge to debate and discussion. This approach to teaching will keep both learner and teacher alive to social realities (National Council of Education Research and Training, 2006:8).

According to the National Council of Education Research and Training (2006:8), concepts should be clarified to the learners through the lived experiences of individuals and communities. It has often been observed that cultural, social and class differences create their own biases, prejudices and attitudes in classroom contexts. The approach to teaching therefore needs to be open-ended. Teachers should discuss different dimensions of social reality in the class, and work towards creating increasing self-awareness among themselves and in the learners.

The strategies that can be used in the teaching of Social Sciences include lecturing (direct instruction) (Bligh, 2000:4), drill-and-practice (direct instruction) (Tournaki, 2003:449), demonstration (direct instruction) (McKee *et al.*, 2007:395; Monyai, 2006:110-112), problem solving (indirect instruction) (Loyens *et al.*, 2008:414), case studies (indirect instruction) (Monyai, 2006:118-120; Yin, 2009:37), mind maps (indirect instruction) (Novak & Cañas, 2006:56), homework (independent instruction) (Bennett & Kalish, 2006:12), research projects (independent instruction) (Freiberg, 2002:56), essays (independent instruction) (Warburton, 2006:34), discussion (interactive instruction) (Killen, 2007:26), cooperative learning (interactive instruction) (Killen, 2007:82), role play (experiential learning) (Fogg, 2001:13; Monyai, 2006:122-124), field trips (experiential learning) (Killen, 2007:50), debates (interactive instruction) (Machiette, 2009:12-15) and questioning (direct instruction) (McKenzie, 2007:29). Each strategy will be explained further, as

well as the advantages of making use of these strategies in Social Sciences classrooms to nurture creative thinking.

3.8.1 Lecturing as a teaching strategy

According to Bligh (2000:4), the lecture method is a whole-class expository teaching strategy. Lecturing is classified as a teacher-centred approach in which the teacher delivers content in a structured format, directing the activities of learners and maintaining focus on examination results (Killen, 2007:2). Lecturing involves a one-way communication whereby the teacher will be doing all the talking and learners will be listening. Usually there will be no interruption in the form of questions or discussions.

The lecturing strategy holds the following advantages for teaching and learning:

- The teacher has control of the outcomes of the lesson, as he/she is able to convey what is important to learners without deviating from the outcome to be achieved.
- It is equally effective for both large and small groups. This means that it can be used for any group as long as the teacher can be heard.
- The lecture method allows the teacher to emphasize important points and even to elaborate on difficult sections.
- It is one of the most effective methods for helping low performing learners, because the teacher has the opportunity to explain slowly to these learners without being too fast for them.
- A large amount of information can be taught within a relatively short space of time. All learners get the information at the same time.
- The learner receives the information in a structured format and therefore does not have to waste a lot of time synthesizing information to be learned.
- Learners who are not confident in expressing themselves are provided the opportunity to learn in a non-threatening environment.

- The lecture method is the best in conveying skills and knowledge not readily available to learners, especially practical local examples and results of recent research (Bligh, 2000:4).

According to the researcher, the lecture method can be utilized in both the History and Geography sections of the Social Sciences. This particular strategy is very useful for introducing new topics to learners, as concepts are taught step-by-step. Any content in both of the above-mentioned subjects can be taught in this manner.

The lecture strategy can nurture creative thinking, but only to a limited extent if used in conjunction with the question and answer strategy, as the use of the questioning strategy enhances learner involvement. The researcher argues that this particular strategy cannot be the only strategy used by a Social Sciences teacher, as this strategy only works effectively when teaching basic knowledge and skills, and needs to be supplemented with other strategies if creative thinking is to be nurtured (Killen, 2007:2).

3.8.2 Drill-and-practice as a teaching strategy (cf. 3.3.3)

According to Tournaki (2003:449), as an instructional strategy, drill-and-practice is familiar to all teachers. It "*promotes the acquisition of knowledge or skill through repetitive practice.*" It refers to small tasks such as the memorization of spelling or vocabulary words, or the practising of arithmetic facts, and may be found in more sophisticated learning tasks or physical education games and sports (Tournaki, 2003:450). Drill-and-practice, like memorization, involves repetition of specific skills, such as addition and subtraction, or spelling. To be meaningful to learners, the skills built through drill-and-practice should become the building blocks for more meaningful learning (Tournaki, 2003:450).

Using drill-and-practice has the following advantages:

- Drill-and-practice activities help learners master materials at their own pace.
- Drills are usually repetitive and are used as a reinforcement tool.

- Effective use of drill-and-practice depends on the recognition of the type of skill being developed, and the use of appropriate strategies to develop these competencies.
- There is a place for drill-and-practice mainly for the beginner or for learners who are experiencing learning problems (Tournaki, 2003:451).

The researcher is of the opinion that the drill-and-practice strategy can also be used in History and Geography. In History, this strategy is most often employed when learners need to memorize specific dates, names of people and events. The same is true for Geography. Drill-and-practice can be used to drill information like geographical concepts, such as “*direction*”, “*bearing*”, and “*distance*”.

According to the researcher, this strategy does not nurture creative thinking at all and is the basis for other higher-order thinking skills, as this strategy mainly stimulates thinking on the first level of Bloom’s Taxonomy, which is knowledge recall (Anderson & Krathwohl, 2001:13; Bloom, 1956:8). Although the researcher is of the opinion that this strategy can be used to ensure that basic concepts are remembered, but it must be supplemented with other more thinking-intensive strategies in order to nurture creative thinking.

3.8.3 Demonstration as a teaching strategy (cf. 3.3.3)

Demonstration is a teaching strategy used with both large and small groups (Monyai, 2006:110-112). Demonstrations become more effective when verbalization accompanies them. For example, in a lecture that comprises demonstration and lecturing, an explanation accompanies the actions performed (McKee *et al.*, 2007:395; Monyai, 2006:110-112). It is a generally accepted learning theory that the greater the degree of active participation and sensory involvement by the learner, the more creative learning could take place (Bruce *et al.*, 2009; Monyai, 2006:110-112).

According to McKee *et al.* (2007:395), demonstration holds the following advantages for teaching and learning:

- Utilizing several senses: learners can see, hear and possibly experience an actual event

- Stimulating interest
- Presenting ideas and concepts more clearly
- Providing direct experiences
- Reinforcing learning

Demonstrations can be used as a teaching strategy for History, for example when a teacher is demonstrating how to interpret a political cartoon either on the chalkboard or on the projector. The teacher will firstly demonstrate the procedure step-by-step and then the learners will try another example. The same is true for Geography, as a teacher can demonstrate how to calculate distance on a map. Once the demonstration is over, the learners will need to try another example.

Demonstration, according to the researcher, can nurture creative thinking, as learners watch and listen to their teacher performing the demonstration. Learners may begin to think on the application level of Bloom's Taxonomy, as they will need to apply what the teacher is explaining. Application is a higher-order thinking skill and a foundational skill for synthetic thinking, which is identified as creative thinking (Anderson & Krathwohl, 2001:13; Bloom, 1956:8). This strategy should be used where possible, but should also be supplemented with a variety of other strategies. The researcher argues that using a demonstration links with creative fluency or the generation of ideas. By watching the teacher doing a demonstration, the learners are given an opportunity to create their own understanding of the work, thus generating their own ideas.

3.8.4 Problem solving as teaching strategy (cf. 3.4.3)

According to Monyai (2006:114-118) and Morrison *et al.* (2011:312), problem solving can be considered as the process of applying existing knowledge to a new or unfamiliar situation in order to gain new knowledge. Thus, problem solving is a form of inquiry learning. Teaching problem solving is teaching learners how to solve problems, and problem solving as a teaching strategy is a technique in which problems are used deliberately as a means of helping

learners to understand or gain insight into the subject they are studying (Monyai, 2006:114-118; Morrison *et al.*, 2011:312).

Loyens *et al.* (2008:414) cites the following as advantages of using problem solving as a teaching strategy:

- It challenges learners to solve problems.
- Learners participate actively in what is being taught.
- It helps learners gain new knowledge.
- It teaches them that their answers to problems should be practical.
- It develops critical and creative thinking skills.
- It develops the learners' curiosity.
- It helps learners make their own judgments.
- It gives learners the opportunity to apply their knowledge.
- It keeps them involved in the learning process (Loyens *et al.*, 2008:414; Monyai, 2006:114-118; Morrison *et al.*, 2011:312).

Problem solving can be utilized in both the History and Geography sections of Social Sciences. For example, in the History class a teacher could create a problem situation and tell the learners to come up with solutions, for example: *"You are a member of the ANC back when the freedom charter was being created. You and your group need to create your own charter, based on a democratic South Africa"*. The learners then need to brainstorm together to come up with ideas to put into the charter. This strategy can be used in Geography as well, for example: a teacher could create a problem scenario involving pollution. The learners in groups need to brainstorm together to generate solutions to the environmental problem.

The researcher argues that this strategy is one of the best for nurturing creative thinking. Learners, when creating solutions, need to generate new ideas that could solve the problem. This process of idea generation is linked with the creative thinking skill of fluency (Torrance, 1977:15).

3.8.5 Case studies as a teaching strategy (cf. 3.4.3)

Case studies are factually based, complex problems written to stimulate classroom discussion and collaborative analysis (Monyai, 2006:118-120; Yin, 2009:37). Case study teaching involves the interactive, learner-centred exploration of realistic and specific situations. As learners consider problems from a perspective, which requires analysis, they strive to resolve questions that have no single right answer (Monyai, 2006:118-120; Shepard & Greene, 2003:22).

Yin (2009:37) mentions the following as advantages of using case studies during teaching:

- Learners sort out factual data, apply analytic tools, articulate issues, reflect on their relevant experiences and draw conclusions they can relate to new situations.
- They acquire substantive knowledge and develop analytic, collaborative and communication skills.
- Cases add meaning by providing learners with the opportunity to see theory in practice.
- Learners seem more engaged, interested and involved in the class.
- The use of cases in the classroom makes subject matter more relevant.

The researcher is convinced that case studies can most definitely be utilized in both History and Geography to nurture creative thinking. In History, a teacher can give the class a case study revolving around an investigation of the life of Nelson Mandela and his release from Robben Island. The learners will need to construct a coherent analysis of the life of Mandela. In Geography, a teacher could make use of a case study by finding an article on the Hurricane Katrina disaster and doing an investigation into how hurricanes are formed and the impact of the disaster on the people affected by it.

The researcher argues that case studies can indeed help nurture creative thinking, as learners need to scrutinize and analyse information linked to the case study and then synthesize it into their own coherent report.

3.8.6 Mind maps as a teaching strategy

According to Novak and Cañas (2006:56), a mind map is a figure used to denote words, ideas, tasks or other items connected to and arranged around a significant key word or idea. Mind maps are used to generate, visualize, structure and classify ideas, and as an aid to studying and organizing information, solving problems, making decisions and writing.

The elements of a given mind map are organized instinctively according to the significance of the concepts, and are classified into groupings, branches or areas, with the goal of representing semantic or other links between portions of information. Mind maps may also aid recollection of existing memories (Novak& Cañas, 2006:56).

Novak& Cañas (2006:56) emphasize the following as advantages for using mind maps:

- Problem solving
- Outline/framework design
- Structure/relationship representations
- Marriage of words and visuals
- Individual expression of creative thinking
- Condensing material into a concise and memorable format
- Team-building or synergy-creating activity

Mind maps can be used in almost any subject or learning area, including Social Sciences. In both Geography and History, teachers can instruct learners to make mind maps after every theme or chapter of work. The varying ideas being generated when drawing up the mind map link to creative fluency. In addition, as stated by the advantages of this strategy, mind maps are individual expressions of creative thinking, thus nurturing learner originality (Torrance, 1977:17).

3.8.7 Homework as a teaching strategy (cf. 3.5.3)

According to Bennett and Kalish (2006:12), homework or homework assignments refer to tasks assigned to learners by their teachers to be

completed mostly outside the classroom, and derive the name from the fact that most learners do the majority of such work at home. Common homework assignments may include a quantity or period of reading to be performed, writing or typing to be completed, problems to be solved, a school project to be built (such as a diorama or display) or other skills to be practised (Bennett & Kalish, 2006:13).

For Bennett and Kalish (2006:13), homework holds the following advantages:

- Improving study skills, especially time management
- Teaching learners that learning can take place outside the classroom
- Involving parents so that they can assist their children
- Promoting responsibility and self-discipline

Homework is a universal strategy that is utilized in every single subject or learning area. In Social Sciences, homework can vary from simple didactic questions to be answered, to more complex investigative activities. Homework, as stated by the advantages of this strategy, promotes self-discipline.

The researcher is of the opinion that the teacher needs to set homework questions and activities that will stimulate learners' creative fluency in order for learners to come up with new ideas while away from school.

3.8.8 Research projects as a teaching strategy (cf. 3.5.3)

According to Freiberg (2002:56), research projects are very effective for developing and extending language arts skills as learners learn in all subject areas. While doing research, learners practise reading for specific purposes, recording information, sequencing and organizing ideas, and using language to inform others (Freiberg, 2002:56).

A research model provides learners with a framework for organizing information about a topic. Research projects frequently include these four steps:

- determining the purpose and topic;
- gathering the information;

- organizing the information; and
- sharing knowledge (Freiberg, 2002:56).

The use of research projects holds the following advantages:

- Increases learners' ability to access information, organize ideas and share information with others
- Provides opportunities for learners to read a variety of reference materials and resources
- Involves learners in setting learning goals and determining the scope of units of study (Freiberg, 2002:56)

Research projects can be used in both History and Geography sections of Social Sciences. In History, a teacher may issue a heritage project on the women's march in South Africa. Learners will need to find sources of information regarding two women who played a role in the march. In Geography, teachers may issue an environmental research project, in which learners will need to analyse water pollution levels in their communities.

The skills used in research involve gathering relevant sources and analysing them for useful information (Freiberg, 2002:56). The next step involves organizing the information, which is identified as creative thinking, as synthesis is taking place, where learners need to collate data into a coherent arrangement. The researcher recommends this strategy for the nurturing of creative fluency.

3.8.9 Essays as a teaching strategy (cf. 3.5.3)

According to Warburton (2006:34), an essay is a piece of writing which is often written from an author's personal point of view. Essays can consist of a number of elements, including: literary criticism, political manifestos, learned arguments, observations of daily life, recollections and reflections of the author. Essays are used to judge the mastery and comprehension of material. Learners are asked to explain, comment on or assess a topic of study in the form of an essay (Warburton, 2006:35).

Warburton (2006:36) cites the following as advantages of using essays during teaching:

- Consolidate learner understanding
- Allow learners to delve more deeply into a particular subject area
- Stimulate learners' minds by assembling an argument
- Give learners practice in using technical or specialist terminology
- Enable learners to express their thoughts clearly and logically
- Encourage learners to think and read widely and deeply

Essays, as a strategy, can be used in both History and Geography, but according to the researcher's own personal experience, this strategy is best utilized in the History section. Essay writing in History is based on a statement revolving around some period in history, and the statement is usually biased. A typical essay question would be *"Joseph Stalin brought about the rise of the Soviet Union. Through his policies of five-year-plans and farm collectivization, he single-handedly brought Russia up from a backwards nation, to being the next great superpower. Evaluate the validity of this statement"*. To answer this question, learners must utilize all known thinking skills to write an argumentative essay. In assessing History essays, the marker looks for a clear understanding of the question, in which learners need to analyse relevant pre-knowledge, scrutinize this knowledge, synthesize it to form a coherent argument and finally back up that argument with historically grounded opinions.

According to the researcher, essays, if implemented effectively, can nurture all known thinking skills within Bloom's Taxonomy (Bloom, 1956:8), including creative fluency. The only possible issue that could arise is if learners do not know how to formulate an argument based on the statement. Teachers therefore need to ensure that their learners know how to write an essay.

3.8.10 Discussions as a teaching strategy (cf. 3.6.3)

Discussion is an orderly process of face-to-face group interaction in which people exchange ideas about an issue for the sole reason of answering a

question, enhancing their knowledge or making a decision (Gunter *et al.*, 2010:190-191; Killen, 2007:26). For a discussion to be called a discussion, the following five logical conditions should be classified:

- Learners must talk to one another,
- listen to one another,
- respond to one another,
- collectively put forward more than one point of view, and
- they must have the intention to develop their knowledge, understanding and judgment of the issue under discussion (Gunter *et al.*, 2010:190-191).

Advantages of discussions

- Discussions actively involve learners.
- Active involvement in learning motivates learners.
- It can help learners develop awareness of acceptable ways of social interaction.
- Learners are able to analyse the lesson content.
- Learners share their knowledge and experience.
- Discussions generate new ideas or produce original solutions to problems.
- It allows learners to see a number of points of views.
- The learners practise dealing with controversy (Arends, 2009:428-438; Gunter *et al.*, 2010:190-191).

Discussion as a strategy can be used in almost any subject or learning area. According to the researcher, this particular strategy is quite effective in the Social Sciences classroom. The researcher argues that, in a History class, the teacher may begin a discussion with the class revolving around Nazism and the evil deeds of Hitler. In Geography, the teacher may begin a discussion on the implications of rapid urbanization in population geography. These discussions would serve the purpose of sharing opinions, so that learners may become flexible in their thinking.

The researcher is also of the opinion that discussion can help nurture creative thinking. Creative fluency is nurtured when learners share their newly generated ideas among themselves and with the teacher. Learners also get to hear other peers' points of view, which might be different, linking with flexible thinking. It allows learners to deal with controversial issues, especially in the History class. If the classroom climate is friendly and open, learners will feel more comfortable in sharing their ideas, thus nurturing creative originality.

3.8.11 Cooperative learning as a teaching strategy (cf. 3.6.3)

Cooperative learning is both an instructional technique and a teaching philosophy that encourages learners to work together to maximize their own learning and the learning of their peers (Killen, 2007:82; Monyai, 2006:124-129). For groups to be considered cooperative, the following elements should be there:

- Positive interdependence of members in a group
- Face-to-face interaction
- Individual accountability so that all learners within a group are responsible for learning the material
- Group analysis of the outcomes achieved and how well the group functions (Killen, 2007:82; Monyai, 2006:124-129)

According to Killen (2007:82), cooperative learning holds the following advantages:

- It teaches learners to be self-reliant.
- It encourages them to verbalize their ideas.
- Cooperative learning teams help empower learners to take greater responsibility for their learning and for the learning of others.
- Learners like to learn and like schools better when cooperative learning is used.
- Cooperative learning provides learners with opportunities to test their ideas and understanding and to receive feedback in a relatively safe and non-threatening environment.

- Learners learn in a more relaxed atmosphere than in whole-class discussion.
- Cooperative learning offers many opportunities for learners to compare answers and judge the appropriateness of those answers.
- It helps learners to understand that different points of view need to be divisive.
- It can be used in conjunction with almost all teaching methods.
- If the group size of the cooperative learning groups is between 4 to 5 learners per group, at any given time, about $\frac{1}{4}$ of the class will be actively engaged in contributing to the lesson.
- It encourages weak learners to persist and helps strong learners to identify gaps in their understanding.
- The interaction that occurs during cooperative learning helps to motivate learners and stimulate their thinking.

The researcher contends that cooperative learning can be implemented successfully in both History and Geography sections of Social Sciences. Groups in the History class could be given a task in which they have to work together to answer a worksheet covering a topic. The same example would apply for Geography, where groups of learners for example would share topographical maps and help one another calculate distance. Cooperative learning allows learners to interact socially, thus supporting an environment in which ideas are shared and others' points of views are taken into consideration (Monyai, 2006:124-129). This strategy could specifically foster greater fluency among learners, as ideas are being generated among a number of learners in a group.

3.8.12 Role-play as a teaching strategy (cf. 3.7.3)

According to Fogg (2001:13), performance activities or role-plays are those teaching strategies in which one or more learners are required to 'act a part'. Usually learners who are participating are required to take a 'role' and to behave in ways that may not be natural to them (Fogg, 2001:13).

Role-playing allows learners to take risk-free positions by acting out characters in hypothetical situations. It can help them understand the range of concerns, values and positions held by other people. Role-playing is an enlightening and interesting way to help learners see a problem from another perspective (Fogg, 2001:13; Monyai, 2006:122-124).

Fogg (2001:13) mentions the following as advantages of using role-play during teaching:

- Involving learners in learning so that they appreciate the value of participation
- Allowing learners to get the 'feel' of the situation
- Providing learners with opportunities to develop a range of communication skills
- Giving learners opportunities to deal with complex problems in a practical way
- Providing learners with the opportunity to practise in a safe environment
- Focusing learners' attention on social and political issues
- Helping learners to understand the feelings and attitudes of others by experiencing situations
- Encouraging learners to develop skills and self-confidence that will be useful in school life and beyond

The researcher regards the role-play strategy applicable to the Social Sciences, but more particularly suitable for the History class. The teacher could inform the learners that they will act out an event in history, for example, the Potsdam Conference at the end of World War II. Each group member would act out a specific person, one person for Roosevelt, one for Churchill and one for Stalin. Learners are given some freedom to express their originality in the play, but the core presentation must be based on historical facts.

As stated previously, this method can stimulate learner originality. It is a shame, however, according to Fogg (2001:13) that role-play appears to be

under-used. Possible reasons for this include classroom disruptions or certain groups of learners not taking the play seriously. If teachers could be a bit more flexible when it comes to group work, and could manage the class discipline effectively, this strategy could be used more often.

3.8.13 Field trips as a teaching strategy (cf. 3.7.3)

According to Killen (2007:50), field trips are structured activities that occur outside the classroom. It can be a brief observational activity or a longer more sustained investigation or project.

Field trips offer an opportunity for learners to get exposure to "real" people and events and the opportunity to make connections with others. Learners on field trips visit people and places that they are not normally exposed to during the school day (Killen, 2007:50).

Killen (2007:51) mentions the following as advantages of using field trips:

- Learning in new environments
- Putting knowledge into practice
- Letting learners learn by doing
- Introducing learners to new experiences

Field trips are also a wonderful strategy to employ when teaching Social Sciences. The History class could go to a variety of historical landmarks or museums, to enrich the work done at school further. The Geography class could visit a variety of locations, including the planetarium and geological sites such as impact craters.

The researcher supports the use of field trips, as they can nurture creative thinking. Learners experience new environments that they are not normally exposed to, enrich the learning in the classroom, as learners can physically experience the places that were taught about in class. This strategy is a form of experiential learning, where learners put their knowledge to practice, thus nurturing creative elaboration. One negative aspect regarding field trips is that they are not always feasible. A lot of planning has to go into arranging a field trip, such as receiving parental consent for the children to go, organizing

transport for the learners, not to mention the cost (Killen, 2007:51). Due to this fact, it is possible that field trips are rarely if ever done, as only the most affluent schools can afford to take their learners. Many underprivileged schools just simply never go on field trips, which unfortunately deprives the Social Sciences learners of this valuable experience (Killen, 2007:51).

3.8.14 Debates as a teaching strategy (cf. 3.6.3)

According to Darby (2007:78-89) and Machiette (2009:12-15), debating is a structured contest of argumentation in which two opposing individuals or teams defend and attack a given proposition. The procedure is bound by rules that vary according to location and participants. The process is adjudicated and a winner is declared (Darby, 2007:78-89; Machiette, 2009:12-15).

According to Darby (2007:78-89), debates hold the following advantages:

Debates:

- engage learners in a combination of activities that cause them to interact with the curriculum;
- force the participants to consider not only the facts of a situation but the implications as well;
- participants think critically and strategically about both their own and their opponent's position; and
- the competitive aspects encourage engagement and a commitment to a position.

The researcher is of the opinion that debates are a wonderful strategy to implement in the Social Sciences classroom. It can be applied in both History and Geography sections. In History, a teacher may split the class into two and allocate each group with a particular viewpoint. For example, the teacher states that group 1 represents the USA, and that group 2 represents the Soviet Union. The teacher acts as an adjudicator and mediator while the two groups are debating. Issues such as the Berlin Wall, Korean and Vietnamese Wars, the Cuban missile crisis and the nuclear arms race could be debated, where one team will try to convince the other that their position is correct.

Learners cannot simply say what they want to, as all points raised must be linked to historical fact.

In Geography, a debate involving the shift towards green energy could be done, where one half of the class could be for fossil fuels and the other group could be for green energy. The researcher is convinced that debates can nurture creative thinking among learners, as learners have to generate ideas quickly to rebut the opposing argument, which can stimulate fluency quite effectively.

3.8.15 Questioning as a teaching strategy (cf. 3.3.3)

A question is any sentence, which has an interrogative form or function (McKenzie, 2007:29). In classroom settings, teacher questions are defined as instructional cues or stimuli that convey to learners the content elements to be learned and directions for what they are to do and how they are to do it (Killen, 2007:53).

McKenzie (2007:29) highlights the following advantages of asking questions:

Questions:

- cultivate interest and stimulate learners to become actively involved in lessons;
- gauge learners' preparation and check on homework completion;
- develop critical thinking skills and inquiring attitudes;
- evaluate and recap previous lessons;
- foster insights by revealing novel relationships;
- assess attainment of instructional aims and objectives; and
- inspire learners to pursue knowledge by themselves.

The next section deals with Edward de Bono's Six Thinking Hats strategy that could be used to *inter alia* nurture flexible thinking.

Figure 3.2 highlights the gist of the strategy as outlined by De Bono.

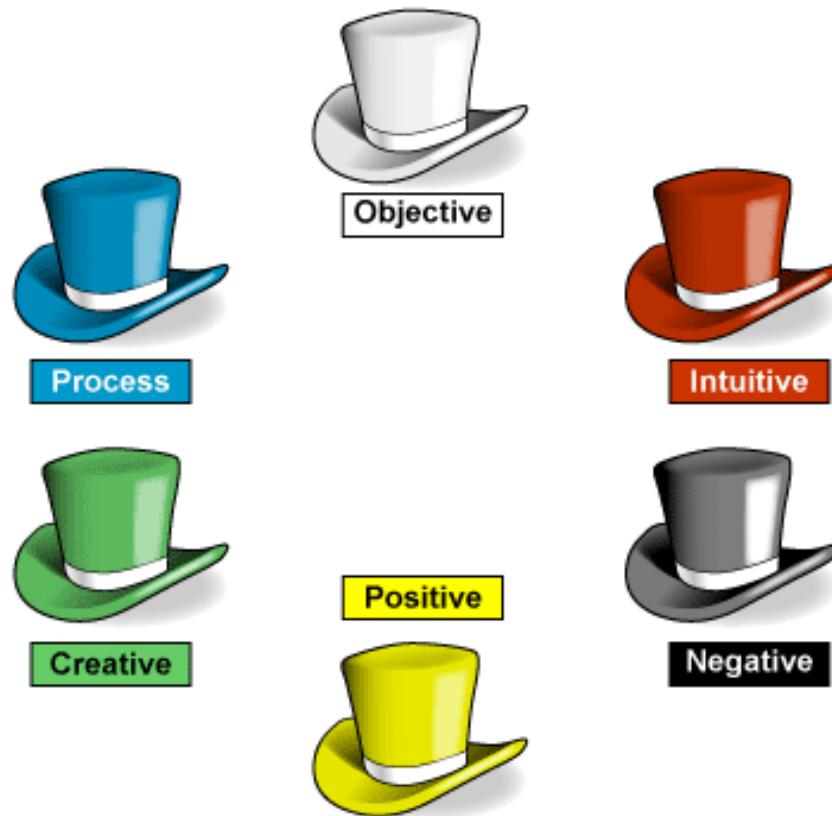


Figure 3.2: Six Thinking Hats

According to Birdi (2005:102-111) and De Bono (1985:12), the Six Thinking Hats strategy allows us to “see” our thinking. The strategy separates thinking into six distinct domains as seen in the above figure, Figure 3.3. This strategy, if applied in the Social Sciences classroom, can stimulate flexible thinking. This is done as learners then need to “switch over” to another hat, or another way of thinking. With enough practice, the learners will be able to interchange flexibly between the thinking domains.

The six coloured hats each represent a certain type of thinking that can be elicited through careful questioning. In a Social Sciences context, the following questions could apply. The **white hat** represents factual, objective information (Birdi, 2005:102-111; De Bono 1985:12), for example: “What happened at Pearl harbour?”, “When did Columbus discover America?”, “Who was the leader of Nazi Germany?”. The **yellow hat** represents thinking related to benefits or advantages (Birdi, 2005:102-111; De Bono 1985:12), for example: “What were some of the advantages of the industrial revolution?”. The **black hat** represents thinking related to barriers and disadvantages (Birdi,

2005:102-111; De Bono 1985:12), for example: "What were some of the negative impacts brought about by the Industrial Revolution?" The **red hat** represents thinking that involves emotions and intuition, or how one feels regarding a particular situation (Birdi, 2005:102-111; De Bono 1985:12), for example: "What is your opinion regarding Apartheid?" The **blue hat** represents thinking processes related to synthesis and metacognitive actions that focus on providing motivations for thinking in a particular way (Birdi, 2005:102-111; De Bono 1985:12), for example: "What are the most important points to consider when dealing with World War II?"

One of the six hats, the **green hat**, is representative of creative thinking (Birdi, 2005:102-111; De Bono 1985:12). A strategy that can be used to generate creative questions is by asking "what if" questions based on content. For example, a question like, "What if Columbus never discovered America? What would the world be like today?" This type of question allows learners to make use of their creative thinking, as they now have to generate new, novel ideas to answer the question. This particular type of question was addressed within the questionnaire, to see whether teachers are asking questions related to creative thinking. In terms of its educational use, the Six Thinking Hats strategy allows teachers to purposefully ask questions on a varying scale of cognitive complexity, as well as learners formulating questions, relating to Bloom's Taxonomy.

The next section will specifically deal with the use of resources in the Social Sciences classroom, as teaching cannot be separated from the use of instructional media (Ferreira, 2006:137), and according to the researcher, the use of resources can assist in nurturing creative thinking.

3.9 USE OF RESOURCES IN THE SOCIAL SCIENCES CLASSROOM

The use of resources (also known as Learning and Teaching Support Material or LTSM) facilitates the construction of new knowledge (Ferreira, 2006:137). Teachers have at their disposal a variety of resources available for instruction. Traditional forms include printed media such as book materials or projected text. Visual forms include overhead projection of drawings, slide projection of images or computer projection of slides (Kincheloe, 2001:12-16).

Research on the differential effects of instructional media does not point to any one resource having the best effects on learning (De Beer, 2010:128). Most media can serve most instructional functions such as an orderly presentation of information. The use of multiple resources to show and explain the same concepts, however, has positive cumulative effects. This leads to deeper understanding and enrichment of learning (Kincheloe, 2001:12-16).

Learners are likely to use different cognitive systems to process verbal and visual media. These differences among learners are identified as preferable learning styles. Evidence suggests that people learn abstract, new and novel concepts more easily when presented in both verbal and visual form (De Beer, 2010:128) and that visual media make concepts more accessible to a person than text media. This finding should therefore compel teachers to make use of multi-media when presenting lessons.

Teachers in the Social Sciences classroom should utilize greater resources of audio-visual materials, including photographs, charts and maps, and replicas of archaeological and material cultures (Kincheloe, 2001:12-16). This section links with the discussion in Chapter 2 (*cf.* 2.4.3.2) on elaborative thinking, which is the ability to give more detail to responses (Torrance, 1977:16). In teaching, elaborative thinking can be nurtured by making effective use of resources, which allow learners to elaborate on the content being taught. A discussion of the potential resources that can be used in the Social Sciences classroom to nurture creative thinking will follow.

3.9.1 Political cartoons

Political cartoons are rich primary sources that offer fascinating and entertaining insights into the public disposition, the underlying cultural norms of an era, and attitudes toward key events or tendencies of the times (Bickford, 2011:65-80). Since the 18th century, political cartoons have presented a highly beneficial window into the past (Shoob & Stout, 2008:88).

The plain, modest imagery of many cartoons can be highly misleading. The best cartoons express tangible conceptual complexity in a single drawing and a few words. Cartoons from the 1700s and 1800s often employ outdated language, intricate dialogue, and vague visual references. It takes a fair deal

of knowledge of the exact historical context to comprehend such cartoons. In short, political cartoons employ intricate visual strategies to make a point in a confined space quickly. Teachers must help learners master the language of cartoons if they are to profit from these captivating sources of insight into our past (Bickford, 2011:65-80; Shoob & Stout, 2008:88).

Political cartoons, according to the researcher's personal experience, can only be utilized effectively in the History section of Social Sciences. It cannot be adapted for use in the Geography class, as political cartoons deal with historical and political events.

The researcher argues that the use of political cartoons generates creative thinking and nurtures critical analysis as teachers who set questions based on the cartoon would require learners to interpret hidden meanings and symbolisms, as well as the implementation of humour. These interpretations involve synthesizing prior knowledge with current knowledge, as well as common (everyday) knowledge. If one of these three forms of knowledge is not synthesized correctly, the learner will not be able to interpret the entire cartoon. This process links directly to the skill of critical analysis. In addition, if the questions posed by the teacher are too simple, involving basic recognition of characters and events, then creative elaboration will not be nurtured.

According to the researcher, this resource also stimulates elaborative thinking because political cartoons tend to satirize historical events and learners get to understand the cartoonist's viewpoint (Bickford, 2011:65-80; Shoob & Stout, 2008:88). Learners' understanding is therefore enriched, allowing for more elaborative thinking.

3.9.2 Photographs

Period photographs, along with other primary source documents, are engaging yet deceptive historical tools that should become an important part of any History educational experience if available (Shoob & Stout, 2008:73; Van Rooyen & Van der Merwe, 2008:243-250). Their use is also important for the teaching of Geography. The use of aerial photography is a requirement for Geography teaching at Grade 9 level.

In the History classroom, photographs of historical events and places can supplement instruction in a positive way. Photos can be used in source-based questions, where learners would have to analyse and interpret the photos. This could include analysing the setting where the photo was taken, the subject of the photo, the historical context of the photo and the message portrayed by the photo (Shoob & Stout, 2008:73; Van Rooyen & Van der Merwe, 2008:243-250). Historical photographs can also instil within the learners a sense of empathy, as tragic photos often depict violent acts, with which the learners sympathize. Furthermore, historical photographs can develop learner originality, in the sense that learners can place themselves into the time period and try to imagine life in previous times.

In Geography, photographs are essential when dealing with sections on map work. When teaching aerial photography the use of photos becomes a necessity. Learners need to be able to differentiate between high oblique, low oblique and vertical aerial photographs, as well as work with these photos to calculate scale, bearing and distance. The researcher is of the opinion that photos allow learners to elaborate on basic map work concepts, as they now have to apply the concepts onto the map. Therefore, learners' understanding could be deepened and enriched.

3.9.3 Maps

The use of maps in the teaching of History is of vital importance. The maps used by history teachers offer supplemental aid for the topic being discussed (Shoob & Stout, 2008:84-87; Van Rooyen & Van der Merwe, 2008:243-250). When a teacher is discussing a particular topic, for instance World War II, the teacher can make use of a wall map to point to the war location and to the countries involved. The researcher regards maps as useful, as learners can graphically relate to what is being taught, and allow learners to elaborate further on their thinking, more so than if the teacher was just speaking without using a map.

Maps are perhaps the most important tools of a geographer. The value of maps in geography teaching cannot be over-estimated. They record definite facts of positions, relief, climate, vegetation, materials and their distribution

broadly over the earth, in continents, countries, states (Shoob & Stout, 2008:84-87; Van Rooyen & Van der Merwe, 2008:243-250).

Although maps are limited in scope, Shoob and Stout (2008:84-87) argue that they are of immense use in the teaching and learning of geography. A map is a tool of the geographer and therefore, no lesson in geography can be called complete without the use of a map. A geography teacher should realize that the lessons without a map are meaningless. Rather, more can be expressed in a single map, than by volumes of speech or writing.

The above statement indicates that maps are very expressive resources, which can add deeper detail and value to both Geography and History. In Geography, learners will have to elaborate on their understanding of map work by completing tasks and calculations. The map is a useful resource in that it allows learners to visualize their understanding of concepts.

The researcher argues that the use of maps in History can be of vital importance, as historical maps can visualize places. This is crucial, as learners who simply listen to a teacher or take down notes will not be orientated visually towards the content. The use of maps could make learners aware of exactly where events took place and allow learners to conceptualize events in relation to where they are situated. Maps enrich learner understanding, ultimately nurturing creative elaboration.

3.9.4 Textbooks

According to Killen (2007:78) and Van Rooyen and Van der Merwe (2008:238), a textbook is described as a book of information used in the study of a subject. A prerequisite for a school textbook is that it must cover the content framework of the NCS for a specific grade. It will enable learners to find anything in it that will make the learning content more accessible and comprehensible to them (Killen, 2007:78; Van Rooyen & Van der Merwe, 2008:238).

Killen (2007:78) also points out that it is important to remember that no textbook can ever replace the teacher. It is, however, a given that many schools in South Africa have poor or no library facilities. Therefore, the use of at least one textbook is more often than not the only aid readily available in

the classroom. The correct choice in the selection of a textbook is therefore of great importance.

It is argued by De Beer (2010:130) that some textbooks are better than others, in the sense that the activities and resources in one book may nurture thinking skills better than in another textbook. Good textbooks generally include a variety of resources, including written sources, political cartoons, photographs and maps. However, despite the textbook containing all these resources and stimulating activities, the responsibility lies with the teacher to make the work accessible to learners and to guide them through the various activities. Only in this way, can a textbook assist in the development of thinking skills (Killen, 2007:79; Van Rooyen & Van der Merwe, 2008:239).

The researcher is of the opinion that Textbooks have garnered a negative reputation in the teaching of History in particular, as learners are sometimes required to answer their tests and exams word for word like those of the textbook. For the researcher the use of the textbook does nothing but stimulate the most basic thinking skills, those of rote learning and memorization (Killen, 2007:79; Van Rooyen & Van der Merwe, 2008:239). According to the opinion of the researcher, the use of textbooks does not allow for learner originality either.

3.9.5 Chalk board

Kincheloe (2001:12) states that chalkboards are traditional visual aids that are a very important part of classroom teaching, in both History and Geography. Learners often find lessons boring and so teachers use the chalkboard as a way to encourage their learners to pay attention (Kincheloe, 2001:12; Van Rooyen & Van der Merwe, 2008:239). A teacher has to find ways to keep the learners interested and engaged in the lesson. When the information is written on the board, the learner knows that the information has to be important. The learner then does not have to guess what to write down as notes (Killen, 2007:79).

According to Kincheloe (2001:14), a good strategy to use would be to invite learners to write their own ideas on the chalkboard when performing activities. This will encourage class participation. Asking learners if they have copied

down all the information from the chalkboard before erasing it is a good practice. Learners will become upset and frustrated if the teacher has erased the information off the chalkboard before they have had a chance to copy everything. Teachers also run the risk of losing their attention for the rest of the lesson (Killen, 2007:79; Van Rooyen & Van der Merwe, 2008:240).

Killen (2007:79) suggests that chalkboard teaching is regarded as very traditional teaching. Education in South Africa is currently geared toward innovation in the classroom and integration with technology. However, that being said, at many schools across South Africa teachers can only use the chalkboard as a resource as their schools simply cannot afford to buy more technologically advanced resources. If other resources are available, every effort must be made to utilize them instead of solely relying on the chalkboard (Killen, 2007:79; Van Rooyen & Van der Merwe, 2008:240).

According to the researcher, writing on the chalkboard should not, however, be regarded as a negative teaching resource. An innovative teacher can still nurture thinking and involve learners in the class. Through skilful didactic questioning, the teacher can probe learners' thinking abilities and enhance and enrich them, linking with creative elaboration (Kincheloe, 2001:14; Van Rooyen & Van der Merwe, 2008:241). Other strategies that could be used in conjunction with chalkboards would be concept maps.

3.9.6 Overhead projector

According to Ornstein and Lasley (2000:25) and Van Rooyen and Van der Merwe (2008:251-253), the overhead projector is one of the most frequently used (and misused) tools in education and training today. It may be facing a challenge from the data projector, but it is still more flexible and useful for all except uninterrupted, rehearsed presentations (Ornstein & Lasley, 2000:25; Van Rooyen & Van der Merwe, 2008:251-253).

The overhead projector is usually under the control of the teacher: this means that it is by default an instrument of teacher-centred instruction. This is not necessarily a bad thing, and teachers can develop its use as a tool of session management. If used effectively, the overhead projector can be seen as an

essential teaching resource (Ornstein & Lasley, 2000:27; Van Rooyen & Van der Merwe, 2008:251-253).

Killen (2007:81) argues that teachers need to be wary of placing transparencies onto the projector and requesting learners simply to copy down all the information on the transparency. This reflects poor teaching and teachers should be using their projectors to enhance learning, to foster thinking in the classroom.

An effective approach to using overhead projectors is to use different kinds of transparencies and not just text-based ones. A skilful teacher would use the OHP to clarify concepts while teaching the class. An advantage of this is that the teacher's back is never turned towards the learners, which could cause major discipline problems (Killen, 2007:82; Van Rooyen & Van der Merwe, 2008:251-253).

It is the opinion of Ornstein and Lasley (2000:27) that in the current socio-economic environment in South Africa, many schools around the country simply do not have enough funds to afford overhead projectors for their classrooms. In many rural and Township Schools across the country, teachers are left with the bare minimum of resources for teaching.

The researcher argues that the use of the overhead projector can foster creative elaboration. A skilled teacher can make use of transparencies that enrich and deepen the understanding of learners, instead of merely using a lecturing strategy supplemented with the chalkboard.

3.9.7 Audio-visual media

According to Van Rooyen and Van der Merwe (2008:253), audio-visual media, such as videos, films, recordings and documentaries, are effective resources that can also be used in the Social Sciences classroom.

Videos are powerful agents for learning if they are well used. A good video can serve as an introduction to a topic, give information on learning content and be used to review lessons or even for assessment (Van Rooyen & Van der Merwe, 2008:253). These videos can ultimately be collected by the teacher and stored for future viewings by other classes.

This resource gives learners the opportunity to gain more control over their learning, so that they are not as dependent on the teacher. The main advantages of using audio-visual media are that one can fast-forward to specific parts, as well as apply slow motion or frame-by-frame viewing (Van Rooyen & Van der Merwe, 2008:253).

However, the researcher wishes to note that audio-visual media cannot replace the teacher. Unfortunately, at this stage, relatively few South African schools possess the equipment required to use educational audio-visual media.

3.9.8 Information communication technology

According to Van Rooyen and Van der Merwe (2008:254-256), unlike the overhead projector, the computer was not designed as a teaching or instructional medium. The characteristics of information communication technology are that it compels learners to give instructions in a logical manner. This means that the learner must learn to communicate with explicit, exact instructions (Van Rooyen & Van der Merwe, 2008:254-256).

Van Rooyen and Van der Merwe (2008:254-256) further assert that interactive computer programmes show the learner that learning can be exciting and challenging. These programmes contribute towards a better attitude towards learning, improving the self-image of learners. Diverse learning experiences can be provided, as there are numerous programmes to facilitate basic instruction, remediation or enrichment. Learners progress at their own time and pace according to their level of development (Van Rooyen & Van der Merwe, 2008:254-256).

Van Rooyen and Van der Merwe (2008:254-256) continue their argument that the computer supplies immediate feedback and is objective in its comments. This ultimately yields a high rate of reinforcement. The computer presents powerful graphic possibilities, which can be combined with sound, colour and motion to promote abstract thought and spatial orientation. Through the use of graphics and a host of computer software, learners can organize and communicate their ideas. It also promotes the formulation and testing of ideas, assumptions and hypotheses (Van Rooyen & Van der Merwe, 2008:254-256).

It is the opinion of Van Rooyen and Van der Merwe (2008:254-256) that by presenting problem situations on the computer, the learner is given the opportunity to make choices and decisions. The learner ultimately gains insight into different problem situations and the influence that various dependent variables can have on them. One disadvantage is that learners tend to work individually at a computer. This causes a lack of social interaction that could be detrimental to the development of the learners. Although the computer can ease the work of the teacher by alleviating the 'drudgery' and provide more opportunity for individual attention to learners with problems, it can never replace the teacher (Van Rooyen & Van der Merwe, 2008:254-256).

3.9.9 Interactive white board

According to Beauchamp and Parkinson (2005:97–103), an interactive whiteboard (IWB), is a large interactive display that attaches to a computer. A projector projects the computer's desktop onto the board's surface where users control the computer using a pen, finger, stylus, or other device. The board is normally attached to a wall or floor stand (Beauchamp & Parkinson, 2005:97–103).

They are used in an assortment of scenarios, including classrooms at all levels of education, in corporate board rooms and work groups, in training rooms for professional sports coaching, in broadcasting studios and others (Beauchamp & Parkinson, 2005:97–103).

Glover *et al.* (2005:155-170) assert that in some classrooms, interactive whiteboards have replaced traditional whiteboards or flipcharts, or video/media systems such as a DVD player and television arrangement. Even where traditional boards are used, the IWB often supplements them by linking to a school network digital video distribution system. In other cases, IWBs interact with online-shared annotation and drawing environments such as collaborative vector based graphical websites (Glover *et al.*, 2005:155-170).

Learners can record brief instructional blocks for review (Beauchamp & Parkinson, 2005:97–103). They will see the exact presentation that happened

in the classroom with the teacher's audio input. This can help change learning and teaching (Glover *et al.*, 2005:155-170).

It must be noted that all the above-mentioned resources can aid in the development of elaborative thinking, if they are used effectively. This would imply that all of resources should be used interchangeably and often. Sole reliance on one resource should be reduced in favour of a more versatile approach to using a variety of resources (Killen, 2007:82). The researcher wishes to add that information communication technology and audio-visual aids were not added to the questionnaire, as the researcher is aware that there are schools that do not have access to these resources.

3.10 CHAPTER SUMMARY

This chapter differentiated between teaching styles, teaching methods and teaching strategies (*cf.* 3.2).

Direct instruction (*cf.* 3.3) is underpinned by behaviourist learning theory which proposes that learners learn through a process called conditioning, and that the environment shapes learner behaviour. The epistemological framework of direct instruction, namely the realist worldview, was also identified (*cf.* 3.3.2). According to this worldview, knowledge is objective and transmitted to learners who are passive recipients of knowledge, which leave little room for creative contributions from the learners.

Indirect instruction (*cf.* 3.4) is underpinned by constructivist learning theory (*cf.* 3.4.1), which views learning as a process of constructing knowledge. Indirect instruction supports a relativist worldview (*cf.* 3.4.2), which argue that learners construct unique knowledge bases. Indirect instruction supports a facilitation teaching style, which is primarily learner-centred and holds many merits for the nurturing of creative thinking.

Indirect instruction (*cf.* 3.5) underpinned by cognitivist learning theory views the memory system as an active organizer of information, and prior knowledge as playing an important role in learning. The epistemological framework of independent instruction, namely relativism supports the fact that each learner constructs a unique knowledge base, which holds merit for the nurturing of creative thinking.

Interactive instruction (*cf.* 3.6) supports constructivist learning theory and views learning as a process of constructing knowledge as opposed to the direct instruction approach that focus on transmission of knowledge. Interactive supports a contextualist worldview (*cf.* 3.6.2), which assumes that learners construct shared understanding in collaborative contexts. Interactive instruction support a facilitation teaching style (*cf.* 3.6.3) and promotes the use of the following teaching strategies that hold merits for nurturing creative thinking, namely brainstorming, cooperative learning groups, debates, discussions and problem solving.

The remaining teaching method, experiential learning was then discussed (*cf.* 3.7). The learning theory underpinning experiential instruction was identified as constructivism (*cf.* 3.7.1), which views learning as a process of constructing knowledge through experience. The epistemological framework of experiential instruction is contextualist in nature (*cf.* 3.7.2), which emphasizes that learners construct shared understanding in collaborative contexts. A brief overview of the various teaching strategies that fall under experiential instruction were also dealt with, namely surveys, role-plays, field trips and simulations, which hold advantages for nurturing creative thinking.

An in-depth discussion of the specific strategies that could nurture creative thinking in the Social Sciences classroom was undertaken (*cf.* 3.8). These strategies were identified as lecturing (*cf.* 3.8.1), drill-and-practice (*cf.* 3.8.2), demonstration (*cf.* 3.8.3), problem solving (*cf.* 3.8.4), case study (*cf.* 3.8.5), mind maps (*cf.* 3.8.6), homework (*cf.* 3.8.7), research project (*cf.* 3.8.8), essay (*cf.* 3.8.9), discussion (*cf.* 3.8.10), cooperative learning (*cf.* 3.8.11), role-play (*cf.* 3.8.12), field trips (*cf.* 3.8.13), debate (*cf.* 3.8.14) and questioning (*cf.* 3.8.15).

The last section dealt with the use of specific resources within the Social Sciences classroom (*cf.* 3.9). An explanation of each resource followed, supplemented with examples of how to utilize them effectively. The resources were scrutinized and their merits in terms of nurturing elaborative creative thinking, were emphasized. These resources were political cartoons (*cf.* 3.9.1), photographs (*cf.* 3.9.2), maps (*cf.* 3.9.3), textbooks (*cf.* 3.9.4), chalkboard (*cf.* 3.9.5), overhead projector (*cf.* 3.9.6), audio-visual media (*cf.*

3.9.7) and information communication technology (*cf.* 3.9.8). The use of political cartoons and photographs appear to hold many advantages for nurturing learners' creative thinking abilities.

In essence, this chapter revealed that in order that teachers nurture creative thinking through their choice of teaching methods, more indirect, independent, experiential and interactive methods should supplement the use of the direct instruction method. The epistemological view that supports the nurturing of creative thinking is that of the relativist and contextualist worldviews. Only against the background of relativist and contextualist classrooms and the use of a wide variety of resources to support teaching will learners be able to make use of higher-order thinking skills, enrich their understanding and generate multiple ideas when dealing with their subject content.

In the following chapter, Chapter 4, the researcher provides a detailed explanation of the empirical research design utilized in the study, as well as a motivation for the chosen design.

CHAPTER 4

EMPIRICAL RESEARCH DESIGN

4.1 INTRODUCTION

The preceding two chapters highlighted the literature pertaining to firstly creative thinking and secondly to teaching methods and strategies that can be employed to nurture creative thinking. The literature study informed the formulation of questionnaire items and interview questions which were used to collect data to determine learner perceptions and teachers' understanding of how creative thinking is presently nurtured in the Social Sciences classroom. This chapter seeks to define and motivate the methodological intent of the study, and to explain how the research was carried out empirically.

This chapter will look at the following:

- Research paradigm
- Empirical research
- Research design
- Research strategy
- Data collection methods
- Reliability and validity
- Trustworthiness
- Research participants
- Data analysis
- Ethical considerations

In order to locate the research within a framework, the researcher had to select an appropriate research paradigm. The procedure followed by the researcher is explained below.

4.2 RESEARCH PARADIGM

A research paradigm could be defined as a basic set of beliefs that guide action in research (Creswell, 2009:6). It is important to locate one's study in a particular paradigm as these world views posit beliefs and epistemologies pertinent to the research to be done.

Maree and Van der Westhuizen (2007:31) suggest that it is useful to think in terms of three significant lenses to examine the underlying assumptions in the practice of research, before identifying a research paradigm. These lenses are the ontological assumptions, epistemological assumptions and the methodological assumptions. Furthermore, a researcher has to reflect on the purpose of the research to be conducted, before conclusively deciding on the paradigm that will frame the research.

Regarding the **ontological assumptions**, the researcher can assume that social reality can be understood from an external (objective) or internal (subjective) point of view (Maree & Van der Westhuizen, 2007:31). In the context of this research, the researcher aimed to understand the nurturing of creative thinking from an objective point of view by examining the perceptions of learners. In addition, the researcher also wished to obtain the subjective viewpoint of the teachers regarding the nurturing of creative thinking, by talking to them, thus supporting an internal point of view as well.

The **epistemological assumptions** explain how the researcher views knowledge and how it is obtained (Maree & Van der Westhuizen, 2007:31). In the context of this research, the researcher assumed that knowledge should be seen as hard, real and objective, also known as the Positivist stance. Ultimately, this means that knowledge can be transmitted in tangible form, which may lead to adopting quantitative methods. As the researcher was interested in obtaining the objective perspectives of learners regarding the nurturing of creative thinking, the positivist stance was regarded as suitable. In addition to the positivist stance, the researcher also regarded knowledge as subjective, as he was interested in obtaining information from the teacher participants themselves regarding the nurturing of creative thinking. The researcher therefore also supported an interpretivist stance to the gathering of information/data.

The **methodological assumptions** involve how the researcher views the nature of research and how it is to be carried out (Maree & Van der Westhuizen, 2007:31). The researcher was convinced that utilizing a mixed method approach that gathers quantitative and qualitative data, would yield

the best outcome, as it could potentially lead to deeper insights and solutions to the research questions.

Based on the aforementioned explanation, the research paradigm or worldview adopted by the researcher was Pragmatism. According to Creswell (2009:10), Pragmatism is the philosophical underpinning for mixed methods studies. This paradigm can be defined as being concerned with applications, including working solutions to problems. This paradigm also makes use of all research methods available to understand the research problem (Creswell, 2009:10).

This paradigm was selected as it best suits the nature of the study to be undertaken. The researcher wished to determine learner perceptions objectively and subjectively gauge teacher understanding of the nurturing of creative thinking subjectively through teaching methods by making use of a quantitative and qualitative research approach to better understand the nurturing of creative thinking in the Grade 9 Social Sciences classroom.

The pragmatic framework also influenced the choice of the research design, the research strategy and the data collection methods as discussed below.

4.3 EMPIRICAL RESEARCH

4.3.1 The literature review

The literature study consisted of explanations and definitions from a wide variety of sources, explaining certain keywords and phrases, which apply to the research itself. These keywords and phrases used were: creativity, creative thinking, teaching methods, teaching styles, teaching strategies, teaching resources and the subject Social Sciences. A number of databases were used, including JSTOR, EBSCOHOST and ERIC.

4.3.2 Aim and objectives of the study

The overall aim of this study was to determine the extent to which creative thinking is nurtured in the Grade 9 Social Sciences classrooms through the choice of teaching methods.

This was achieved by:

- determining what creative thinking in the Grade 9 Social Sciences classroom entails by means of a literature study;
- analysing which teaching methods, strategies and resources are best suited to nurture creative thinking in the Social Sciences classrooms by means of a literature study;
- examining learner perceptions regarding the teachers' use of teaching methods, strategies and resources when teaching Grade 9 Social Sciences by means of a questionnaire;
- gauging teachers' understanding regarding the nurturing of creative thinking in Grade 9 Social Sciences classrooms by means of an interview; and
- establishing the influence of biographical variables on the learner responses regarding the nurturing of creative thinking in the Grade 9 Social Sciences classroom.

4.3.3 Research design

Research designs are plans and the procedures for research that span the decisions from broad assumptions to detailed methods of data collection and analysis (Creswell, 2009:3). Informing these decisions should be the paradigm assumptions the researcher brings to the study. Three types of research designs are identified, namely: qualitative, quantitative and mixed method research designs.

In line with the pragmatic paradigm, a sequential explanatory mixed method research design was utilized within the research. This design was used in order to elaborate on the findings of one design with another design. The study began with a quantitative design using questionnaires, followed by a qualitative design involving detailed exploration with a few individuals through interviews (Creswell, 2009:14). The researcher wished to do the quantitative study first and qualitative study second, in order to base the questions in the interview schedule on the findings obtained from the quantitative data.

Quantitative research involves identifying the characteristics of an observed phenomenon or exploring possible correlations among two or more

phenomena (Leedy & Ormrod, 2005:94). As the researcher objectively identified the characteristics of how creative thinking in the Social Sciences classroom were nurtured through the perceptions of the learners, quantitative research suited this purpose with the study.

Qualitative research is more descriptive and does not require statistics to reach a hypothetical conclusion (Leedy & Ormrod, 2005:94). This type of research deals with experiences of participants on a more personal level. As the research also involved teachers and their personal experiences in the classroom with regard to their teaching methods, qualitative research suited the researcher's aim to obtain first-hand experience from the teacher participants by talking to them.

The strength of a mixed method research design is that it can be especially useful when unexpected results arise from a quantitative study (Creswell, 2009:211). In such a case, the qualitative data can be used to examine these surprising results in more detail. The straightforward nature of this design is also one of its strengths. It is easy to implement because the steps fall into clear, separate stages. This design also makes it easy to describe and report findings. A major weakness of this design is the length of time involved in data collection, having two separate phases (Creswell, 2009:211).

The data collection process used as part of a sequential explanatory design comprised the following phases as depicted in Figure 4.1.

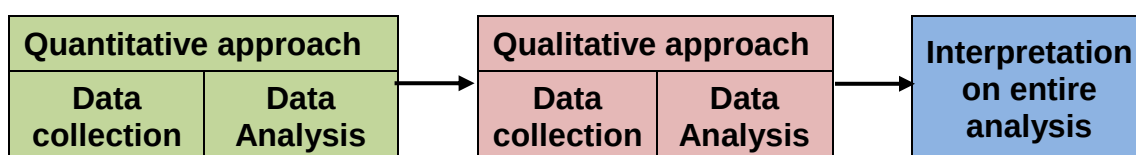


Figure 4.1: Phases of data collection: sequential explanatory design

Figure 4.1 depicts that the timing of this particular design is characterized by the collection and analysis of quantitative data in a first phase of research, followed by the collection and analysis of qualitative data in a second phase that builds on the results of the initial quantitative results (Creswell, 2009:211).

The weight is given to the quantitative data and the mixing of the data occurs at the end of the second phase as part of the interpretation of the entire analysis (Creswell, 2009:211).

4.3.4 Research strategy

Research strategies or strategies of inquiry provide specific direction for procedures in a research design (Creswell, 2009:13). The present research involved the use of quantitative and qualitative research strategies as part of a mixed method research design.

The research used **descriptive survey research** in the first phase of the research, due to the quantitative nature of the study where statistical data were gathered from questionnaires. Descriptive research either involves exploring possible correlations between two or more phenomena, or identifying the characteristics of an observed phenomenon as was the case in the context of the study (Leedy & Ormrod, 2005:108). Survey research involves acquiring information about one or more groups of people. Information gathered could be about the characteristics, opinions, attitudes or previous experiences. This is done by asking them questions and tabulating their answers. A survey is quite simple in design, as a series of questions are posed to willing participants. Summaries of the responses are done with percentages, frequency counts or other more sophisticated statistical indexes and then drawing inferences about a particular population from the responses of the sample (Leedy & Ormrod, 2005:183). This research wished to gather the opinions of the Grade 9 Social Sciences learners regarding their teachers' use of teaching methods, strategies and resources, making this strategy suitable.

Following on the first phase, the research also used a **phenomenological research strategy** in its second phase, due to the qualitative nature of the study, by making use of a phenomenological research strategy of inquiry. Phenomenological research studies phenomena in the world as we immediately experience it in our ordinary, everyday lives, pre-conceptually, pre-theoretically and pre-reflectively (Leedy & Ormrod, 2005:139).

Phenomenological research seeks to identify those elements that are essential to the phenomena's composition, and those elements that cannot be taken from it. The way phenomenological research is conducted is by and through the attentive practice of thoughtfulness (Cohen *et al.*, 2007:43; Leedy & Ormrod, 2005:139).

In phenomenological research, the researcher puts aside all prejudgments and collects data on how individuals make sense out of a particular experience or situation (McMillan & Schumacher, 2006:26). Phenomenological research is appropriate to the study as the researcher wished to gauge teachers' own understanding regarding creative thinking and its nurturing through teaching methods, strategies and resources.

4.3.5 Data collection methods

Due to the quantitative and qualitative nature of this study, different data collection instruments were used. The researcher first elucidates on the quantitative data collection instrument, followed by that of the qualitative data collection instrument.

4.3.5.1 Quantitative data collection instrument

A self-constructed Likert scale questionnaire with closed-ended questions was used as the data collection instrument for the quantitative research (Leedy & Ormrod, 2005:185; Maree & Pietersen, 2007b:161). The questionnaires were issued to the sampled learners to determine their perceptions on the teaching methods, strategies and resources that their teachers use to nurture creative thinking.

The use of a Likert rating scale is useful when behaviour, opinions, perceptions, attitudes or other phenomena of interest need to be evaluated (Leedy & Ormrod, 2005:185). In this case, the learners' perceptions regarding the nurturing of creative thinking through the teacher's choice of teaching methods, strategies and resources were determined. The scale ranged from 1 to 4, 1 representing "Almost always", 2 representing "Often", 3 representing "Sometimes" and 4 representing "Almost never", in order to determine the frequency with which certain teaching methods, strategies and resources are utilized.

The questionnaire items were linked to the conceptual framework of the study, which focuses on Torrance's framework for creative thinking (Torrance, 1977:12). The questionnaire items related to the extent, according to the learners' opinions, that teaching methods, strategies and resources are used

to provide opportunities for nurturing elaboration, originality, flexibility and fluency during teaching.

The following aspects highlighted by Maree and Pietersen (2007b:159) concerning the construction of a questionnaire, namely the appearance of the questionnaire, the time completion of the questionnaire, criteria considered for formulating questions (wording), questionnaire sections and the types of questions were adhered to.

Appearance of questionnaire

The researcher incorporated all the aspects as suggested by Cohen *et al.*, (2007:338) and Maree and Pietersen (2007b:159) to make the questionnaire user-friendly. The printing was done neatly, the font on the questionnaire was not too small and the layout was professional; clear instructions were given and the purpose for compiling the questionnaire was indicated (*cf.* Appendix C).

Time completion of the questionnaire

According to Maree and Pietersen (2007b:159), learners should be able to complete a questionnaire in less than thirty minutes. In the context of this study, all the learners used less than the time indicated. The learners all took approximately fifteen to twenty minutes to fill in the questionnaire, which comprised of 51 questionnaire statements.

Criteria considered for formulating questions (wording)

The questions in the questionnaire were formulated in such a way that it probed learners' perceptions regarding their teachers' use of teaching methods, strategies and resources in the Grade 9 Social Sciences classroom. These questions were ordered logically into different sections so as not to confuse the participants. The questions in each section only dealt with one topic. The researcher also focused on the correct wording of the questions to ensure that the items were understood and meaningful. Some of the guidelines as suggested by Cohen *et al.* (2007:334) and Maree and Pietersen (2007b:160) were applied:

- Clear, unambiguous language was used.

- Statements were clear and to the point.
- Double-barrelled and vague statements were avoided.
- No sensitive aspect, that might have offended participants, were addressed in the questions.

Questionnaire sections

The questionnaire was developed in accordance with the literature review on creative thinking and teaching methods. The aim of the questionnaire was to gather information from learners regarding their perceptions of their teachers' use of teaching methods, strategies and resources to develop creative thinking. The questionnaire thus comprised of the following sections, with cross references to the sections in the literature review that informed the construction of the specific items, indicated in brackets.

- Section A: Biographic information
- Section B: Creative thinking: Elaboration (*cf.* 2.4.3.2, 3.9)
- Section C: Creative thinking: Fluency (*cf.* 2.4.3.2)
- Section D: Creative thinking: Flexibility (*cf.* 2.4.3.2): items 1-5 focused on flexibility related to teaching, and items 6.1 - 6.6 focused on flexibility related to questioning.
- Section E: Creative thinking: Originality (*cf.* 2.4.3.2)
- Section F: Teaching strategies (*cf.* 3.8)

Types of questions

The questionnaire items that were asked in the questionnaire were closed-ended questions formulated as statements, as the learners were not expected to elaborate on their answers and the researcher wished to obtain specific answers. Closed-ended questions provide for a set of responses from which the participants have to choose one (Maree & Pietersen, 2007b:161). Data obtained from the administration of closed questions is easier to analyse than data obtained from open questions. The researcher merely wanted to determine the frequency with which certain teaching methods, strategies and resources are utilized, by examining the opinions of learners (*cf.* Appendix A).

The researcher is aware of the following limitations and advantages of using questionnaires for research purposes.

Limitations of questionnaires

- Questionnaires, like many evaluation methods, occur after the event, so participants may forget important issues, such as teaching methods as related to the study.
- Questionnaires limit probing and clarification of answers, for example elucidating on the teacher's use of questioning. This is true for this research, but this is why the qualitative section was added.
- It is not possible to pick up when participants might misinterpret questions. This could be partially solved by piloting the questions on a small group of learners, which this research did.
- Participants may answer superficially, especially if the questionnaire takes a long time to complete. This did not occur as the questionnaire was completed in less than 20 minutes.
- Return rates can be low if the researcher does not administer the questionnaires personally. This was avoided as the researcher distributed the questionnaires personally.
- Participants may not be willing to answer the questions, such as leaving answers blank (McMillan & Schumacher, 2006:211). This particular limitation occurred within this study, as a few learners left their ethnic background blank.

Advantages of questionnaires

- The responses are gathered objectively and anonymously. This advantage limits researcher bias and complies with ethical principles. This was the case with this research, as all participants remained anonymous.
- Generally, it is relatively quick to collect information using a questionnaire. It took no longer than 20 minutes to collect the data at schools in the case of this research.

- They are easy to score, as the questionnaire made use of a 4-point Likert scale.
- They are effective to determine frequency and strength of attitude, as was done in the analysis and interpretation section.
- Participants have time to think about their responses before answering.
- Potentially, information can be collected from a large portion of a group, such as an entire class (McMillan & Schumacher, 2006:211). This is true for the research as multiple classes were utilized.

4.3.5.2 Qualitative data collection method

Once the quantitative research had been carried out, a qualitative study was undertaken. Interviews were conducted with selected teachers in order to understand their perspectives and thoughts on creative thinking and how to nurture it in the Social Sciences classroom. These data were then used to explain the quantitative data that were gathered and interpreted before the qualitative study by means of a combined analysis and interpretation of data.

According to Nieuwenhuis (2007b:87), in qualitative research interviews can be differentiated between open-ended (also known as unstructured) interviews, semi-structured interviews and structured interviews. An **unstructured interview** often takes the form of a conversation with the intention that the researcher explores with the participant his or her views, ideas, beliefs and attitudes about certain events or phenomena. Unstructured interviews usually spread over a period and consist of a series of interviews (Nieuwenhuis, 2007b:87).

In **structured interviews** the wording and ordering of questions are predetermined as in survey research and usually used to obtain biographic information from participants (Merriam, 2009:89). **Semi-structured interviews** are more flexibly worded and make use of both closed and open-ended questions, although specific information is desired. The main part of the interview is guided by questions, which allow the participants to explain their thoughts and opinions. Semi-structured one-on-one interviews are used to

gain a detailed picture of participants' beliefs or perceptions on a particular topic (Greeff, 2005:292-297).

The interviews were semi-structured and were conducted on a one-to-one basis with each of the teachers from the sampled schools. Only one teacher per school needed to be interviewed and no focus group interviews were conducted, making a one-on-one interview more suitable, as the specific teacher of the Grade 9 Social Sciences class that was used in the quantitative research was interviewed. The researcher wanted to understand the teachers' points of view and their reasoning behind the findings in the quantitative study. The researcher chose a semi-structured interview, so that the participants could share their ideas freely, but at the same time having structure to keep the interview in line with the phenomena under question. The duration of the interviews was at maximum one hour. The interviews were conducted in both English and Afrikaans, to maximize understanding during the interview and to allow the participants to respond to questions with ease. The Afrikaans interviews were transcribed into English as the research report was written in English.

The aim of the interview was to follow up with the teachers the results found in the quantitative study. This was done in order to explain the findings that were derived from the questionnaire data. The interviews were therefore conducted after the quantitative data had been analysed. They were also conducted at the schools after hours at times arranged with the sampled teachers.

The researcher continued to collect data until data saturation was reached. More teachers would have been selected if not enough information was obtained from the six participants. This, however, did not need to be carried out as data saturation took place during the initial interviews. Data saturation occurs when the researcher is no longer hearing or seeing new codes or patterns. Unlike quantitative researchers who wait until the end of the study to analyse their data, qualitative researchers analyse their data throughout the study (McMillan & Schumacher, 2006:347).

As a novice researcher who has limited experience with conducting interviews, the researcher acquainted himself with the skills involved in interviewing as described in the following sections.

Conducting the interview

The most important thing is to identify who will be interviewed and to recruit the participants who will take part in the interviews (Merriam, 2009:105). In the context of the study, the researcher depended on Grade 9 Social Sciences teachers at the various schools who took part in the study, to share their experiences and opinions regarding the nurturing of creative thinking in the classroom. Ultimately, six of the identified teachers agreed to take part in the study, after which the researcher obtained their consent.

Beginning the interview

Before the interview started, the participants were given a chance to write down their biographical information in order that the researcher could obtain a picture of their circumstances, such as experience, type of school and the environment. The researcher addressed each participant at the onset of the interview to clarify intentions and to assure them of confidentiality by using codes for each of the participants. The researcher also obtained their permission to come for a follow-up interview if additional data was needed, and indicated that time and place would be negotiated with them beforehand (Merriam, 2009:106).

Interviewer and participant interaction

The researcher remained respectful, non-judgmental and non-threatening towards all the participants throughout each of the interviews in order to build positive interaction with the participants. This assisted the researcher in obtaining the cooperation of the participants to express feelings, opinions and thoughts about the research topic freely (Merriam, 2009:107).

In order to guarantee successful interviews, the researcher adhered to the criteria as defined by Nieuwenhuis (2007b:88).

- The participants were qualified in terms of the research problem and would provide the information required.

- The researcher verified the participants' willingness to be interviewed and explained the purpose of the interviews with them. The researcher also indicated to them that he would verify interpretations with them before making conclusions.
- The researcher aimed to collect rich data and did an interim analysis after the first two interviews to determine if he had to focus on new dimensions during the interviews in order to achieve saturation of data.
- The researcher avoided questions that lead to "yes" or "no" answers. If participants did answer with yes or no, he made use of probing to obtain additional information.
- The researcher avoided asking leading questions that would guide the participants to the answers that he was looking for.
- A variety of questions were included in the interview protocol.
- The researcher tried to remain a good listener who wanted to understand and not judge the participants.

The interviews for this particular study were conducted in the following manner:

- Interviews were conducted after school hours at times convenient to the teachers to avoid disturbing tuition time.
- Interviews took place at six different schools, two schools for each type of school, namely the Ex-Model C, Township and Private Schools in the D7 District.
- Six purposefully selected participants were interviewed individually for a period of 30 – 40 minutes each.
- All participants were interviewed in their mother tongue, Afrikaans, while others were interviewed in English, as they preferred to use English. All interviews were tape-recorded with the permission of the participants.
- Field notes were important as they assisted the researcher during the analysis and interpretation of data. The researcher took field notes during the interview sessions that related to the participant's reactions and

attitudes during the interviews. Immediately after each interview, the researcher sat down and wrote down the impressions of what was heard, seen, experienced and thought about during the interview (Greeff, 2005:298). The field notes contained the researcher's emotions, preconceptions, expectations and prejudices (Greeff, 2005:299) that could be used in the development of the final interpretations.

The researcher acknowledges the following advantages and limitations of using interviews for research purposes.

Advantages of interviews

- The participant may lack reading skills to answer a questionnaire.
- They are useful for untangling complex topics.
- The interviewer can probe deeper into a response given by an interviewee.
- Interviews produce a higher response rate (McMillan & Schumacher, 2006:211).

Limitations of interviews

The researcher's presence may bias responses.

- It is very time-consuming, which is true for the research, as each interview lasted roughly 30-45 minutes.
- Interviews are not anonymous. People might not be willing to share information because of the fact that their name might be attached to something they said.
- Not all people are equally articulate and perceptive. This was noted in the research, as a few participants did not express themselves properly in terms of language usage.
- It is not used for a large number of people. This was true for the research, as only six participants were interviewed.
- The interviewer may be biased and ask closed questions (McMillan & Schumacher, 2006:211; Creswell, 2009:179). This was avoided, as the entirety of the interview contained open questions.

According to Merriam (2009:96), an interviewer can ask different types of questions to stimulate different responses from an interviewee. Six types of questions are suggested when constructing the interview schedule:

- Experience and behaviour questions, which relate to the interviewee's behaviour or actions (Merriam, 2009:96). These questions were asked in the interview regarding the use of teaching methods in the classroom.
- Opinion and values questions, relating to the interviewee's beliefs and opinions (Merriam, 2009:96). These questions were asked in the interview regarding the teacher's beliefs of creativity and whether creativity can be nurtured or not, and how.
- Feeling questions, relating to the emotional and affective dimensions of the interviewee (Merriam, 2009:96). Questions that were asked included "How do you feel about nurturing creative thinking in the Social Sciences classroom?"
- Knowledge questions, which elicit a participant's factual knowledge related to the situation (Merriam, 2009:96). An example of this question was "What is your understanding of creativity?"
- Sensory questions, relating to the senses of sight, hearing, touch etc. (Merriam, 2009:96). An example of this question was "When you examine the responses of the learners to questions, would you say that they tend to elaborate on their answers or not?"
- Background/demographic questions, related to the interviewee's background (Merriam, 2009:96). An example of this type of question was, "How long have you been teaching Social Sciences?" (cf. Appendix B).

Before structuring the questions, the researcher first took into account what was revealed in the quantitative study that needed to be followed-up with interview questions.

4.3.6 Reliability and validity of the quantitative study

4.3.6.1 Reliability of the questionnaire

In order to ensure reliability further, a pilot study was undertaken which involved 50 Grade 9 Social Sciences learners. These learners were not part of the actual research sample. This was done to determine Cronbach alpha coefficients and the inter-item correlations of the questionnaire items before the actual research began.

To ensure reliability of the questionnaire, it was translated from English to Afrikaans. This was done to accommodate the Afrikaans learners, whose responses may be influenced negatively if the questionnaire was solely in English. The learners whose home language is Sesotho or any other African language answered in English, as they were attending schools where the medium of instruction was English.

The reliability of the questionnaire was ensured by making use of a Cronbach alpha coefficient, which calculated the internal consistency of the different sections within the questionnaire. The Cronbach alpha coefficient determines whether items within a questionnaire are positively correlated to one another, as well as measuring consistency of the individual questions in the questionnaire (Revelle & Zinbarg, 2009:145). In dealing with a set of items an acceptable Cronbach alpha coefficient would range between 0.7 and 0.8 (Revelle & Zinbarg, 2009:145).

Another method to ensure reliability involves an inter-item correlation. This looks at different sections of the questionnaire and judges how well constructs with questions that reflect them will yield similar results. An example would be evaluating the questions in each construct that focuses on a dimension of creative thinking to determine how well the questions actually reflect the construct. An acceptable value for an inter-item correlation ranges between 0.15 and 0.5 (Revelle & Zinbarg, 2009:23).

4.3.6.2 Validity of the research design and questionnaire

Validity and its measurement play a vital role in determining the necessary research design to use. Validity refers to the accuracy of research data (McMillan & Schumacher, 2006:134-142). For the purposes of this research,

criteria for internal, external, construct and statistical conclusion validity were considered when designing the questionnaire (Maree & Pietersen, 2007a:151,152).

Internal validity of a research study is the degree to which its design and the data it yields permit the researcher to draw precise conclusions about cause-and-effect and other relationships within the data (Leedy & Ormrod, 2005:97). According to McMillan and Schumacher (2006:186), internal validity refers to the extent of control over variables, which is strongest when the study's design (subjects, instruments and procedures) efficiently controls potential sources of error.

In the context of the study, the internal validity was supported by the fact that the questionnaire could be regarded as apt and appropriate to gather data regarding perceptions and opinions of Grade 9 Social Sciences learners. Furthermore, the researcher established the influence of biographical variables on the learner responses (*cf.* 5.6).

External validity refers to the degree to which the findings that were drawn can be generalized to other contexts (Leedy & Ormrod, 2005:99). For quantitative designs, there are two broad categories of external validity, namely population external validity and ecological external validity (McMillan & Schumacher, 2006:193).

The external validity of this study was supported by the fact that the study was carried out in a real life setting (Leedy & Ormrod, 2005:99). A limitation related to external validity is evident in the study, as the sample was not randomly selected and therefore generalizations regarding the wider population could not be carried out (McMillan & Schumacher, 2006:141).

Construct validity refers *inter alia* to the use of multiple methods of data collection (McMillan & Schumacher, 2006:141). Although the researcher combined quantitative and qualitative methods of data collection, he acknowledges that by adding observations to the research, a clearer understanding of the research problem could have been obtained, and the construct validity enhanced.

In the context of the study, the researcher is of the opinion that threats to **statistical conclusion validity** were avoided as appropriate statistical tests and procedures were suggested and utilized by the Statistical Consultancy Services of the North-West University, Vaal Triangle Campus to analyse the data obtained from the questionnaires (McMillan & Schumacher, 2006:134) (*cf.* 4.3.8.1).

The validity of the questionnaire itself was ensured by addressing the various forms of validity. Validity is referred to as the extent to which the instrument measures what it is actually intended to measure (Leedy & Ormrod, 2005:92).

Face validity refers to the extent to which an instrument, on the surface, appears to be measuring a certain characteristic (Leedy & Ormrod, 2005:92). This was ensured by distributing the questionnaire to knowledgeable colleagues in the field of creative thinking and asking their opinions on the face value of the instrument.

Content validity looks at the instrument's representation of a specific domain of knowledge that is to be measured (Leedy & Ormrod, 2005:92). The researcher ensured that the questionnaire had sufficient content validity by reflecting the various attributes of the construct creative thinking and its nurturing through the choice of teaching methods in equal proportions. This implied that questionnaire items were formulated to measure the tenets of creativity, namely flexibility, fluency, elaboration and originality in a balanced way, as well as the teaching methods, strategies and resources that could be utilized by the teachers.

Criterion validity relates to the correlation of the measurement instrument's results with other related measurements' results (Leedy & Ormrod, 2005:92). Criterion validity implies that one verifies the results obtained with the questionnaire against results obtained from another questionnaire that more or less focused on the same constructs as the first questionnaire. As there were no existing questionnaires similar to the one utilized in this research, one could not compare results and could therefore not guarantee criterion validity in the context of this study.

Construct validity refers to the measurement instrument's ability to measure a characteristic that cannot be directly observed, but must be inferred from patterns (Leedy & Ormrod, 2005:92). This form of validity was ensured by distributing the instrument to specialists in the field in order to verify whether the instrument measured the construct in question.

4.3.7 Trustworthiness of the qualitative study

According to Babbie and Mouton (2001:276), the rigor of the interview can be ensured by addressing the following aspects:

Trustworthiness is essential for good qualitative research, which refers to the neutrality of the findings or decisions (Babbie & Mouton, 2001:276). In order to ensure research that is trustworthy, a researcher has to adhere to criteria for credibility, transferability, dependability and confirmability. How the researcher complied with criteria for trustworthiness, is explained below.

Credibility, or the compatibility between constructed realities that exist in the minds of the participants and those that are attributed to them, can be ensured by making use of persistent observation, which means that one should try to interpret responses differently. Credibility can also be ensured by making use of materials that can document the findings, such as a tape recorder or video recorder. Credibility can also be ensured by getting members in the field to check your data and interpretations (Babbie & Mouton, 2001:277). The researcher ensured credibility by making use of tape recordings to capture the exact words of the participants, which were transcribed afterwards. The participants were asked to check the transcripts to ensure credible data, in other words: to verify that the transcripts reflected what they had said during the interviews.

Transferability refers to the extent to which the findings can be applied in other contexts or with other participants (Babbie & Mouton, 2001:277). Qualitative research does not make generalizations, but the interpretations are related to the specific context of the research. Therefore, what is true for this research may not be true in other contexts. The researcher provided sufficient background detail about the participants to enable researchers in

other contexts with participants who possess the same characteristics to relate the findings of this study to their contexts.

Dependability refers to the notion that an inquiry must also provide its audience with evidence that, if it were to be repeated with the same or similar participants in the same context, its findings would be similar (Babbie & Mouton, 2001:278) To ensure this, an inquiry audit was used, which examined the documentation, such as the interview notes. The researcher's supervisor and co-supervisor examined the verbatim transcripts and interpretations made by the researcher, to ensure that they reflected what the participants had said.

Confirmability is the degree to which the findings are the product of the focus of the inquiry and not the biases of the researcher (Babbie & Mouton, 2001:278). To ensure unbiased responses, the researcher based all interpretations solely on the raw data gathered from recorded tapes or written field notes. The researcher ensured confirmability by not being biased concerning the findings, but focusing on the data gathered from the recordings and transcripts. To confirm that interpretations were based on the raw data, the verbatim transcripts of the participants are included in Appendix E.

4.3.7.1 Role of the researcher

The researcher plays an instrumental role within qualitative research. The researcher as the primary instrument for data collection poses a threat to the trustworthiness of the collected data, in terms of historical, social and cultural experiences (Creswell, 2009:177; Theron & Grosser, 2010). The researcher acknowledges that the following aspects could have compromised the collection of qualitative data.

Being a White teacher, could have posed problems when entering a Township school where preconceived prejudices might have existed regarding race, which could have compromised data collection. However, this was not the case, as the researcher felt very welcome and all participants at the Township Schools were friendly and open to share their views.

The status of the researcher can also influence the trustworthiness of the data (Creswell, 2009:177). This includes aspects of race, gender and socio-economic status. Age could have influenced the trustworthiness of the data.

As the researcher is young and had to interview more experienced participants, it could happen that they may not be willing to share information with a person who they feel is younger and less experienced than what they are (Creswell, 2009:177; Theron & Grosser, 2010). This was, however, not the case, as the participants were very willing to share their experiences and treated the researcher with respect and openness.

According to Merriam (2009:219), the researcher enters the research field with certain assumptions. With regard to this particular research, thoughts regarding the nurturing of creative thinking had already been shaped by individual experience and the literature covered. To avoid the assumptions clouding interpretations of data, the researcher had to be open to unexpected results that might go against the prevailing assumptions (Creswell, 2009:177). The researcher assumed, based on the findings of his pilot study, that creative thinking was not being nurtured in the Grade 9 Social Sciences classrooms, and that teachers were making use of mainly traditional direct instruction strategies while teaching.

The researcher can also influence trustworthiness if there is a personal connection to the research site. With regard to the sampled schools, one school in particular was left out of the sample as the researcher was employed by that specific school. If research was to be conducted there, the participants could respond in a way to please the researcher, making responses unreliable, as they already knew the researcher and might have wanted to impress the researcher with their answers (Creswell, 2009:177; Merriam, 2009:219-220).

Within the research, many different schools were visited in order to issue the questionnaires, as well as to interview the teachers of the classes. In order to gain entry to the school, the Department of Education was approached in order to gain permission to carry out the research. Another gatekeeper who also had to be asked permission was the principal of each school (Creswell, 2009:177). The researcher approached each principal in order to gain entry into the research site.

4.3.8 Research participants

4.3.8.1 Participants for the quantitative study

The target population for this research was all Grade 9 learners and teachers in the Social Sciences classrooms in South Africa. As it was not possible to conduct research with all Grade 9 learners and teachers of the Social Sciences, the study population constituted Grade 9 learners and teachers in the Social Sciences from the D7 district of the Gauteng Department of Education. By means of purposive sampling, Grade 9 learners and teachers were chosen for the study. Purposive sampling refers to selecting participants for a specific purpose (Leedy & Ormrod (2005:206). In this study, the researcher's initial pilot study indicated a possible problem with the nurturing of creative thinking in Grade 10 History. The actual study therefore purposefully explored the extent of the problem on a larger scale (Bunt, 2009:62) in particular with Grade 9 learners before they make their final choice as to whether to continue with either History or Geography at Grade 10 level (*cf.* 1.1)

However, not every school or Grade 9 class in the D7 district could be sampled, due to time and logistical constraints. To counter the logistical constraints, participants were further selected by means of convenient sampling, which is described as sampling in situations when population elements are selected based on the fact that they are readily and easily available (Maree & Pietersen, 2007c:177). It was also difficult to obtain a complete list of all Grade 9 Social Sciences learners in the District, and therefore the researcher contacted the different school principals of the Secondary Schools in the District to find out whether they were willing to take part in the research. The District comprises 8 Ex-Model C secondary schools, 15 Township secondary schools and 9 Private secondary schools. In total the principals of 5 Ex-Model C, 5 Township and 4 Private Schools indicated their willingness to give permission that the Grade 9 Social Sciences learners and teachers at their schools could take part in the research.

In each of the schools, 1 willing Grade 9 Social Sciences class and their teacher took part in the research. It was estimated that there would be

approximately 40 learners in a Grade 9 Social Sciences classroom, thus 560 learner participants in total. However, some classes had fewer learner numbers, and in total, 399 learners took part in the research and completed questionnaires.

The researcher acknowledges that he utilized non-probability sampling, which implies that the sample might be less representative of the population and that the generalizability of the findings was limited to the participants who took part in the study (McMillan & Schumacher, 2006:125). The group of participants who took part in the study were heterogeneous in terms of the characteristics of the population, namely culture, home language and gender.

In summary, non-probability purposive and convenient sampling was used during phase 1 of the study for the collection of quantitative data.

4.3.8.2 Participants for the qualitative study

A purposive, criterion-sampling strategy was used to select the teacher participants for the qualitative study. Purposive sampling is used when the researcher has a specific purpose in mind. In the context of the study, the focus was purposively on Grade 9 Social Sciences teachers. Therefore, the researcher only selects participants that qualify to suit the purpose (Maree & Pietersen, 2007c:178; Nieuwenhuis, 2007b:79). Criterion sampling implies that the participants need to meet certain criteria, such as age, gender and class. The criteria chosen should assist in selecting those participants most likely to possess the knowledge or experience concerning the research topic (Nieuwenhuis, 2007b:80). The criteria that were of importance in the context of the study were that the participants had to be Grade 9 Social Sciences teachers.

Six of the fourteen teachers who teach the Grade 9 learners who completed the questionnaires were willing to take part in the interviews. The researcher managed to have two willing participants from Ex-Model C Schools, two willing participants from Private Schools and two willing participants from the Township Schools. This ensured that all types of schools were included in the study. According to Leedy and Ormrod (2005:139), a typical sample size for a phenomenological study is from 5 to 25 participants. The number of

participants in this study ($n = 6$), thus complied with the aforementioned guideline.

Because this type of sampling strategy may be flawed, as it may not result in data saturation, the researcher decided that he would add participants to the interviews until new data no longer brought new insights (Nieuwenhuis, 2007b:79).

In summary, purposive criterion sampling was used during the second phase of the study for the collection of qualitative data.

4.3.9 Data analysis

The data gathered was analysed in two separate ways. Statistical procedures were used for the analysis of the questionnaire responses and a content analysis was undertaken for the interviews.

4.3.9.1 Questionnaires

Descriptive statistics

The Statistical Consultancy Services of the North West University: Vaal Triangle Campus was consulted for assistance with the capturing, analysis and interpretation of all the data that were collected. Descriptive statistics were used to organize and summarize data meaningfully in order to promote an understanding of the data characteristics (Leedy & Ormrod, 2005:257). This was suitable, as learner perceptions needed to be summarized to determine to what extent Grade 9 Social Sciences teachers' apply teaching methods, strategies and resources to nurture creative thinking. Various calculations were done, including frequencies, means, standard deviations and percentages. All the results were presented in graphical and tabular form.

Inferential statistics

Inferential statistics were also used as the researcher wished to go beyond the mere summarizing and describing of data. Inferential statistics allow researchers to make inferences about large populations from relatively small samples (Leedy & Ormrod, 2005:267).

A *t*-test was also conducted, which is used when two independent groups need to be compared, based on their average score on a quantitative variable

or when the average scores of two quantitative variables need to be compared in a single sample (Pietersen & Maree, 2007b:225). In this regard, the responses to the different tenets of creative thinking, namely fluency, elaboration, originality and flexibility were compared to determine which of the tenets appeared to be nurtured the most and which one the least.

A MANOVA was conducted, using the independent biographic learner variables one at a time with the dependent variable (creative thinking). The MANOVA determined the effect of the various independent variables on creative thinking. If a statistical significant influence on creative thinking was measured for any of the biographic variables, an ANOVA was run. According to McMillan and Schumacher (2006:373), an ANOVA is conducted where two or more sample means are compared on one independent variable and allows for testing differences between all groups. An ANOVA was conducted to summarize data on single independent variables in relation to creative thinking. If statistical significant results were obtained for any of the variables, a *post hoc* test was conducted to determine which groupings within the variables displayed differences. A Tukey HSD (Honestly Significant Difference) test was used for this purpose (McMillan & Schumacher, 2006:305).

The effect size was also calculated for statistical significant differences, which is a standardized, scale-free measure of the magnitude of the difference or correlation being tested between variables (Pietersen & Maree, 2007c:211). When looking at mean differences, the effect size is denoted by *d*, also known as Cohen's *d*. Effect sizes ranging from 0 to 0.2 are interpreted as a small effect size, while 0.5 is regarded as a medium effect size and 0.8 is a large effect size (Pietersen & Maree, 2007c:211).

4.3.9.2 Interviews

After the interviews, a verbatim transcript of the data was compiled. Thereafter the data analysis was done by means of a content analysis. Content analysis is the most relevant technique to be used for analysing human communication and interaction (Leedy & Ormrod, 2005:142). It is a deductive or an indicative process that assists the researcher in identifying key elements in a

text(Nieuwenhuis, 2007a:101). After the interviews, a verbatim transcript of the data was compiled. Thereafter, the data analysis was done by means of an inductive content analysis as well as a deductive content analysis.

Deductive data analysis

In a deductive data analysis approach, categories of information required from the data are formulated in advance from the literature (Nieuwenhuis, 2007a:99). In the analysis, the researcher was thus guided to look for codes (smaller pieces of data that contained a descriptive meaning) that were identified by the literature and quantitative data. This approach assisted the researcher in testing existing theory on the phenomenon (Nieuwenhuis, 2007a:107). In practical terms, it implied that evidence for creative thinking in the classroom was investigated in terms of thinking that allowed for elaboration, flexibility, originality and fluency as theorised in the literature review.

Inductive data analysis

The researcher also approached the data analysis inductively in order to let the codes emerge from the data (Nieuwenhuis, 2007a:107).

All six interviews were not held at the same time. Interview 1 was conducted and the verbatim transcript finalized and coded, after which interview 2 was conducted, the verbatim transcript finalized, coded and compared to the findings of interview 1. This was done in order to adapt the interview questions if new insights transpired from interview 2. The researcher did not identify new insights after interview 2, and decided to keep the original interview protocol.

The researcher adhered to the following steps and procedures for an inductive analysis of qualitative data as described by Creswell (2009:185-188) and Henning *et al.* (2004:104).

- The verbatim transcripts were prepared in typing format.
- The researcher started close reading of interview 1 in detail so that he was familiar with the content and could form an initial impression.

- An understanding of the “*themes*” and details in the text was obtained and demarcated the focus. The researcher underlined and highlighted data that answered the research question. The researcher looked for words, phrases and sentences that said something about the phenomenon and gave the relevant data segments a code or a label (open coding). The data was divided into segments that contain descriptive meaning and relevant information (McMillan & Schumacher, 2006:375).
- Then the researcher grouped open codes under an identifiable name or label, called axial codes. The researcher then looked for patterns among categories of data. In searching for patterns, the researcher tries to understand complex links among various aspects of peoples’ situations, mental processes, beliefs and actions (McMillan & Schumacher, 2006:373).
- Steps 1-5 were repeated during interview 2 to determine if categories were similar or different to those of interview 1. This was done to refine codes and categories and adapt questions for the following interview.
- The researcher then conducted the remaining interviews and utilized steps 1-5 for the data analysis procedure.
- The constant comparative method was used until data saturation was achieved.
- During the data analysis process, the researcher looked for codes that one would expect to find, based on the literature review, but also considered codes that were new and not anticipated at the beginning of the study.
- Categories across data sources were compared to identify emerging themes and if possible, sub-themes.

The data obtained for the questionnaire and the interviews were combined to come to a clearer and deeper understanding of the nurturing of creative thinking skills in Social Sciences classrooms.

In the final section of this chapter, the researcher explains how he complied with ethical principles in the context of the study.

4.3.10 Ethical considerations

4.3.10.1 Ethical issues in the research problem

During the identification of the research problem, it is important to identify a problem that will benefit individuals being studied (Creswell, 2009: 88).

The problem being studied must be meaningful. This study could be regarded as meaningful because it focused on a prominent Critical Outcome of the National Curriculum Statement, namely the nurturing of creative thinking during teaching and learning.

4.3.10.2 Ethical issues in the purpose and questions

Researchers need to convey the purpose of the study to the participants (Creswell, 2009:88). This is done in order to ensure that participants do not become confused or misunderstand their involvement within the research. This was addressed in the study before the researcher gained the consent of the participants, as the researcher needed to clarify the purpose of the study.

4.3.10.3 Ethical issues in data collection

The Gauteng Department of Education was also approached for permission to carry out the research within the D7 district, as 14 schools within the district were sampled. This permission was granted and the researcher could therefore continue to the next step of approaching the schools themselves (*cf.* Appendix A).

The participants must give their consent before any empirical study is to be undertaken. No participant may be forced to take part in the research. The researcher developed an informed consent form for participants to sign before they engaged in the research (Creswell, 2009:89) (*cf.* Appendix B).

This consent form indicated how the participants were selected, the potential benefits of the study, the type of involvement, guaranteeing confidentiality, ensuring that participants could withdraw at any time, as well as contact details of the researcher, should questions arise.

Ethical clearance has been obtained for this research, as this particular study is a part of a larger research project (*cf.* Appendix G).

4.3.10.4 Ethical issues in data analysis and interpretation

When interviewing the participants or when issuing the questionnaires, their anonymity must be assured (Creswell, 2009:91). No names were taken, once more to ensure anonymity of everybody involved in the research. Participants were therefore identified by means of codes, namely Participant A or B and so forth.

Confidentiality was also guaranteed as only the researcher and the study leader had access to the data obtained. The researcher will make the results of the study available to the participants once the examination process is completed.

4.3.10.5 Ethical issues in writing and disseminating the research

The research must not make use of words or language that is biased against persons due to gender, ethnic group or age differences (Creswell, 2009:92). This was ensured in the research, as the researcher was open to diverse opinions.

Researchers must also avoid falsifying or inventing findings, as this is regarded as scientific misconduct (Creswell, 2009:92). This research was based on sound data and findings, obtained from the actual empirical study.

4.4 CHAPTER SUMMARY

This chapter focused on the research methodology that was employed within the study. Framed within a pragmatic research paradigm (*cf.* 4.2), a sequential explanatory mixed method research design, incorporating both quantitative and qualitative methods of data collection was chosen to conduct the research (*cf.* 4.3.3). Quantitative, descriptive data were collected by means of questionnaires that focused on establishing learner perceptions regarding the nurturing of creative thinking in the Grade 9 Social Sciences classrooms (*cf.* 4.3.4, 4.3.5). A phenomenological strategy of inquiry was employed for the qualitative research. Phenomenological research was appropriate to the study as the researcher wished to gauge teachers' understanding regarding creative thinking and its development through teaching methods in semi-structured one-on-one interviews (*cf.* 4.3.5).

Reliability and validity were discussed pertaining to the quantitative data collection instrument (*cf.* 4.3.6). This involved the calculation of Cronbach alpha coefficients, as well as looking at the different types of validity that needed to be met, such as face validity, content validity, criterion validity and construct validity. The trustworthiness of the interviews were also dealt with, which entailed looking at credibility, transferability, dependability and confirmability (*cf.* 4.3.7).

For the quantitative study, purposive, convenient sampling was used, to select schools and Grade 9 learners and teachers in the D7 district of the Gauteng Department of Education. A purposive criterion sampling strategy was employed to select the teacher participants for the qualitative study (*cf.* 4.3.7).

The data analysis (*cf.* 4.3.9) involved the use of inferential and descriptive statistical procedures to summarize and to make inferences about the quantitative data. Content analyses were used to extract meaning from the qualitative data.

Finally, all the potential ethical considerations were taken into account (*cf.* 4.3.10), such as ethical considerations in the research question, in the data collection, in the analysis and interpretation, etc., that were all adhered to.

The next chapter, Chapter 5, will focus on the analysis and interpretation of the data.

CHAPTER 5

DATA ANALYSIS AND INTERPRETATION

5.1 INTRODUCTION

This chapter presents the statistical analyses and the interpretations of the responses obtained from the teacher and learner participants in order to determine the extent to which teachers nurture creative thinking in the Grade 9 Social Sciences classroom through the choice of teaching methods.

The data analyses and interpretations will be dealt with in the following sequence:

- Reliability of the questionnaire for both the pilot and actual studies
- Biographic information of the participants
- Data analysis and interpretation: learner responses
- Data analysis and interpretation: a comparison between the learner responses for the various questionnaire sections
- Data analysis and interpretation: analysis of variance
- Data analysis and interpretation: teacher interview responses
- Combining quantitative and qualitative data

The next section reports on the reliability of the questionnaire for both the pilot and actual studies.

5.2 RELIABILITY OF THE QUESTIONNAIRE

Table 5.1 indicates the Cronbach alpha coefficients that were calculated for the various constructs in the learner questionnaires for the pilot study.

Table 5.1: Cronbach alpha coefficients: pilot study / learners

Questionnaire constructs	<i>a</i>
Section B: Elaboration	0.555
Section C: Fluency	0.807

Section D: Flexibility	0.602
Section E: Originality	0.655
Section F: Teaching methods	0.815

In order to ensure reliability, a few items from the pilot study with low Cronbach alpha coefficients were deleted and not included in the final questionnaire.

A few changes were also made to the wording that was indicated as being problematic by the participants who took part in the pilot study.

Section C: 2.5 “Synthesize”: additional information was added to explain the meaning of the words “put together”.

Section D: 6.3 “negative aspects” was changed to “disadvantages”.

Section D: 6.4 “positive aspects” was changed to “advantages”.

Section F: 3 “Drilling information”: additional information was added to explain the concept “imprinting and memorization of information”.

Section F: 1 “Dosing” in the Afrikaans questionnaire had additional information added to explain the concept “lesings gee”.

The scales of the questionnaire were also changed from “almost always, often, sometimes, very seldom” to “almost always, often, sometimes, almost never”, as “very seldom” was not understood by a number of the English speaking learners. The scales were translated for the Afrikaans questionnaire to conform to the English version.

Table 5.2 reflects the Cronbach alpha coefficients for the actual study.

Table 5.2: Cronbach alpha coefficients: actual study

Questionnaire constructs	<i>α</i>
Section B: Elaboration	0.500
Section C: Fluency	0.674
Section D: Flexibility	0.707

Section E:Originality	0.600
Section F: Teaching methods	0.789

The reliability of the questionnaire was ensured by making use of a Cronbach alpha coefficient, which calculates the internal consistency of the different sections within the questionnaire.

The Cronbach alpha coefficient determines whether items within a questionnaire are positively correlated to one another, as well as measuring consistency of the individual questions in the questionnaire (Revelle & Zinbarg, 2009:145). An acceptable Cronbach alpha coefficient, when working with a set of items, would range between 0.6 and 0.8 (Revelle & Zinbarg, 2009:145). The low Cronbach alpha coefficient obtained for Section B indicates that the participants apparently do not interpret the items in Section B as related to “elaboration”.

The calculation of inter-item correlation is another method to ensure reliability. Inter-item correlations judge how well questionnaire items reflect the construct that is measured, and the acceptable value would range between 0.15 and 0.5 (Revelle & Zinbarg, 2009:35).

Table 5.3 reports the inter-item correlations for the pilot study.

Table 5.3: Inter-item correlation: pilot study

Questionnaire constructs	Inter-tem correlation
Section B: Elaboration	0.123
Section C: Fluency	0.342
Section D: Flexibility	0.175
Section E:Originality	0.221
Section F: Teaching methods	0.204

Table 5.4 reflects the results for the inter-item correlations for the actual study.

Table 5.4: Inter-item correlation: actual study

Questionnaire constructs	Inter-tem correlation
Section B: Elaboration	0.104
Section C: Fluency	0.189
Section D: Flexibility	0.184
Section E:Originality	0.208
Section F: Teaching methods	0.190

Table 5.3 and 5.4 reflect that the questionnaires complied with the criteria for acceptable inter-item correlations for the pilot study and the actual study.

In order to determine whether parametric or non-parametric statistical procedures should be utilized for the data analysis of the actual study, the data related to skewness and kurtosis had to be considered.

5.2.1 Skewness and kurtosis

Data related to skewness and kurtosis indicates the symmetry of the distribution of data, and guides the researcher in choosing parametric or non-parametric statistical procedures to analyse the data (Brown, 2008; Leedy & Ormrod, 2005:256). Table 5.5 reports on the data obtained for the skewness and kurtosis.

Table 5.5: Skewness and kurtosis

Questionnaire section	Skewness	Kurtosis
Section B: Elaboration	-0.198	0.047
Section C: Fluency	0.229	0.033
Section D: Flexibility	0.246	-0.496
Section E: Originality	0.427	-0.463
Section F: Teaching methods	-0.048	0.031

If skewness is smaller than -1 or larger than 1, the distribution of the data is extremely skew. If skewness lies between -1 and $\frac{1}{2}$ or between $\frac{1}{2}$ and 1, the

distribution is moderately skew. Finally, if the distribution is symmetrical, the skewness will lie between $-\frac{1}{2}$ and $\frac{1}{2}$ (Brown, 2008). Table 5.5 indicates that the distribution of data was not extremely skew and therefore parametrical statistical procedures were utilized to analyse the data.

The next section focuses on the biographic information of the learner participants.

5.3 BIOGRAPHIC INFORMATION OF THE PARTICIPANTS

The researcher distributed 399 questionnaires to learners. Of the 399 questionnaires distributed, all 399 (100%) were returned from the learners.

5.3.1 Biographic information of learners

In Table 5.6, the biographic information of the learners related to the language of instruction they represented is indicated.

Table 5.6: Language of instruction of learners

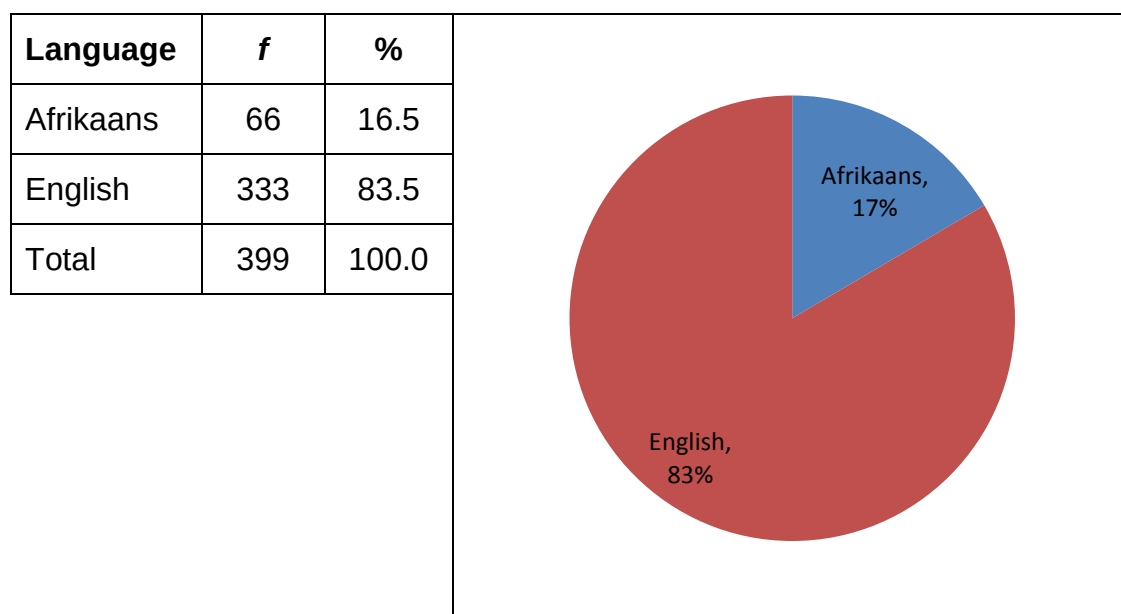


Table 5.6 indicates that the group of learners who took part in the study comprised a mixed language group. The majority of the learners who participated in the study were being taught in English (n=333), with the rest being taught in Afrikaans (n=66).

Table 5.7 presents the biographic information of the learners related to their gender.

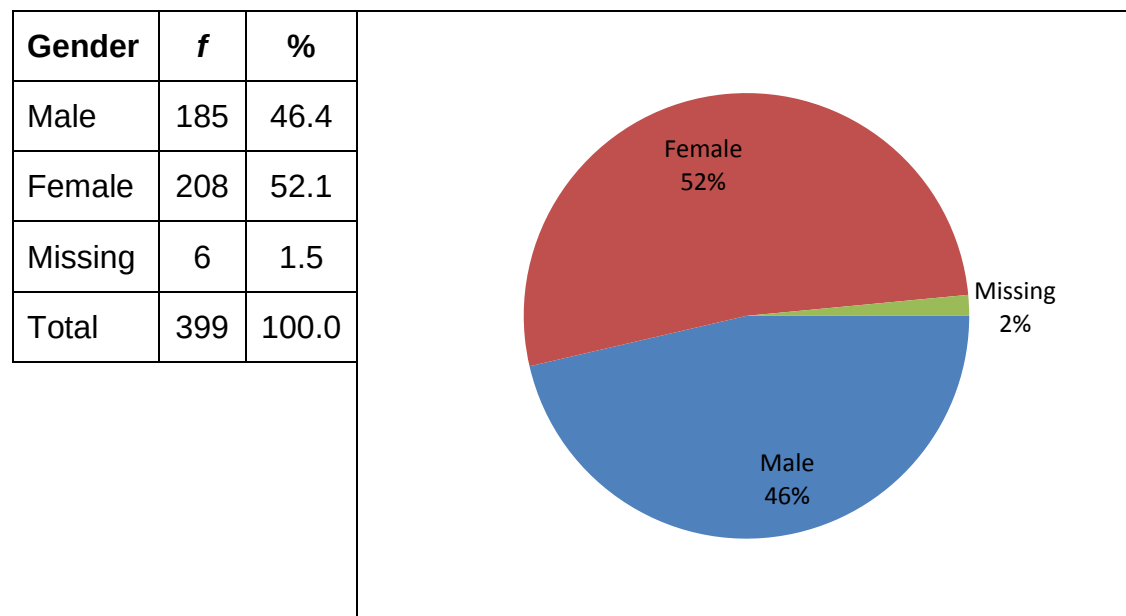
Table 5.7: Gender of learners

Table 5.7 indicates that more female ($n=208$) than male learners ($n=185$) participated in the research, although not a great deal more. A small percentage of learners did not indicate their gender when completing the questionnaire ($n=6$).

Table 5.8 presents the biographic information of the learners related to their type of school.

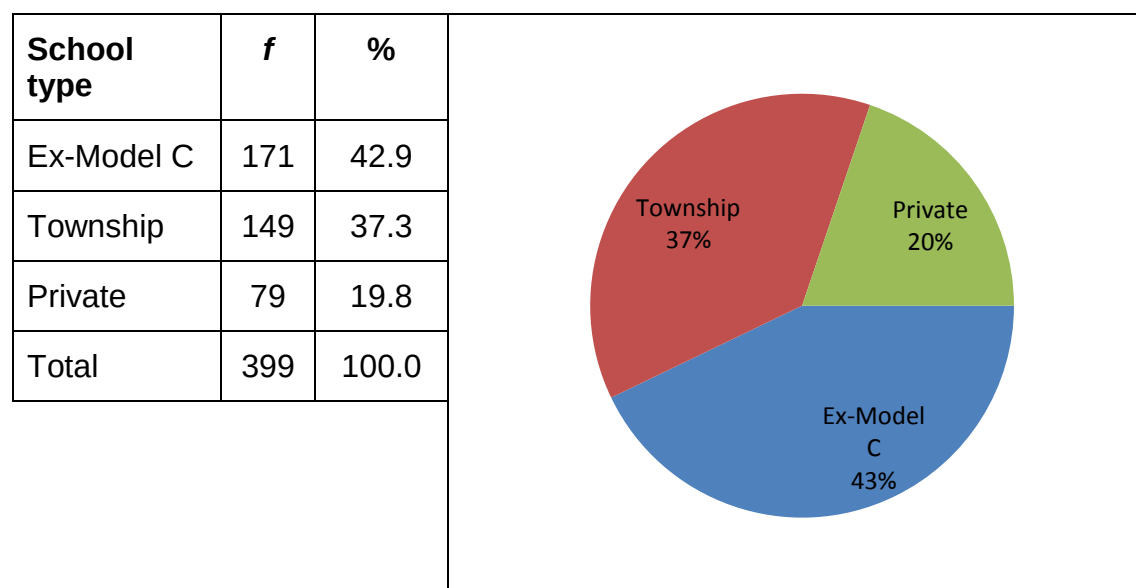
Table 5.8: Type of school of learners

Table 5.8 indicates that more or less an equal number of learners from Ex-Model C Schools (n=171) and Township Schools (n=149) participated in the research. A smaller group of learners from the Private Schools (n=79) also took part.

Table 5.9 presents the biographic information of the learners related to their ethnic group.

Table 5.9: Ethnic group of learners

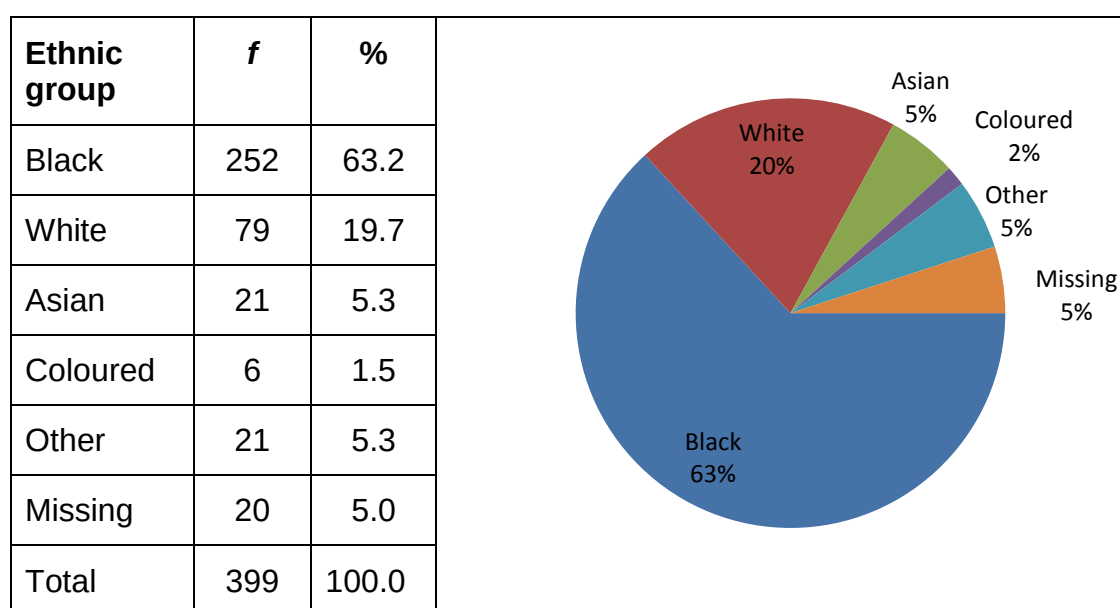


Table 5.9 indicates that the group of learners who took part in the study comprised a mixed ethnic group. The Black ethnic group consisted of 252 learners and is identified as the largest ethnic group. The White group consisted of 79 learners, which is the second largest ethnic group. All the remaining ethnic groups can be considered minority groups in relation to the study, as the Asian group consisted of 21 learners, the Coloured group consisted of 6 learners and the group labelled as “other” consisted of 21 learners. The “other” ethnic group comprised of Indian and Arab learners. A number of learners (20), did not indicate their ethnic group; and their data are indicated as “missing” in the table.

The above-mentioned data related to the biographical variables (language, gender, type of school and ethnic group) (*cf.* 5.3) were used to check whether they influenced the perceptions of the learners regarding the nurturing of

creative thinking in the Social Sciences classroom. The data gathered were used to achieve objective 5 of the study.

In the following section, the researcher reports on the data obtained from the learner participants regarding the various items in each of the questionnaire sections.

5.4 DATA ANALYSIS AND INTERPRETATION: LEARNER RESPONSES

By means of descriptive statistics, data were organized and summarized to promote an understanding of the data characteristics (Pietersen & Maree, 2007a:195).

This section presents the responses obtained from the learners for each of the sections in the questionnaire. Each section focused on a specific construct in relation to the nurturing of creative thinking in the Social Sciences classroom.

The responses of the participants are classified in a frequency table, in order to explore different response patterns between learners (Pietersen & Maree, 2007a:185). The data of the responses are summarized with frequencies and percentages. Graphical representations will serve the purpose of visually highlighting the prominent features that emanated from the responses.

The data will be interpreted according to the average percentage scored on the Likert Scale. The averages of level 1 and 2 (almost always and often) will be added together, and this total percentage, if above 60%, will be viewed as a positive result, as it represents the majority view. Responses to a few of the questions, when added in the above manner, will indicate a negative result, for example question 4 of Section B, question 4 of Section D, as well as question 4 of Section E and questions 1, 2 and 3 of Section F. The researcher expected responses to these questions that would indicate that the actions specified do not happen on a frequent basis, as an overemphasis on these actions could imply that creative thinking is not being nurtured.

For all the other questions however, the average percentages linked to levels 3 and 4 of the Likert Scale (sometimes and almost never) will be added together, and if the total is greater than or equal to 60%, this will represent a negative result, as it represents a majority view.

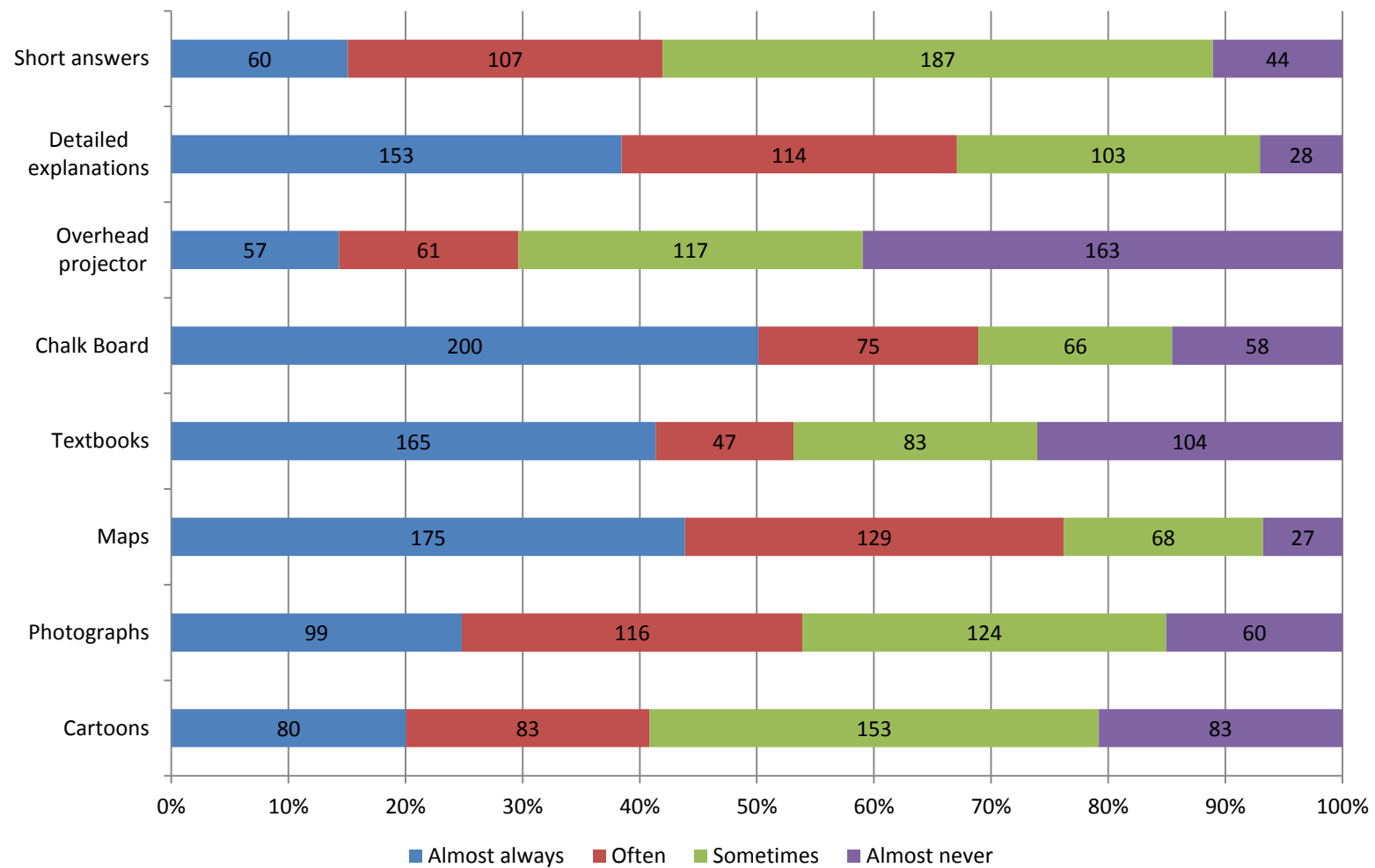
If any of the added percentages fall between the 50% - 59% range, it will be viewed as an average result. If any of the added percentages fall between 75% - 100%, this will indicate a strong majority response, which could be interpreted as being either positive or negative, depending on the data.

Table 5.10 below represents the data obtained for Section B of the questionnaire, relating to **creative elaboration**.

The ideal responses for the following section regarding creative elaboration would entail the teachers making use of all the different resources mentioned below, as well as at least often allowing learners to provide detail to their answers. If these responses are evident, it will mean that creative elaboration is being nurtured in the class, as teachers are not solely utilizing one resource to the detriment of the learners' creative thinking.

Table 5.10: Learner responses: Creative thinking: Section B: Elaboration

Question	Almost always		Often		Sometimes		Almost never		Missing	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1.1 My teacher makes use of political cartoons when teaching.	80	20.1	83	20.8	153	38.3	83	20.8	0	0.0
1.2 My teacher makes use of photographs when teaching	99	24.8	116	29.1	124	31.1	60	15.0	0	0.0
1.3 My teacher makes use of maps when teaching.	175	43.9	129	32.3	68	17.0	27	6.8	0	0.0
1.4 My teacher makes use of textbooks when teaching.	165	41.4	47	11.8	83	20.8	104	26.0	0	0.0
1.5 My teacher makes use of the chalk board when teaching.	200	50.1	75	18.9	66	16.5	58	14.5	0	0.0
1.6 My teacher makes use of the overhead projector when teaching	57	14.3	61	15.3	117	29.3	163	40.8	1	0.3
2. My teacher lets me explain answers to questions in detail .	153	38.3	114	28.6	103	25.8	28	7.0	1	0.3
3. I normally provide short answers to questions.	60	15.0	107	26.8	187	46.9	44	11	1	0.3



The above table represents the data obtained for section B, pertaining to creative elaboration. The questions cover the use of resources within the Social Sciences classroom. The last two questions also relate to creative elaboration.

The data obtained for question 1.1, regarding the use of political cartoons in the History section of the Social Sciences, is under-used according to the findings. Teachers only use cartoons 20.1% almost always, and a further 20.8% make use of cartoons often. This leaves almost 60%, where teachers only sometimes or almost never make use of cartoons in the teaching of Social Sciences. This is therefore considered to be a negative finding, as the majority of the responses indicate that political cartoons are not being used frequently in the Grade 9 Social Sciences classroom. It is the researcher's opinion that the effective utilization of political cartoons can help develop elaborative thinking. As this question was formulated around the ideas of Torrance (1977:16), political cartoons can enhance ideas by providing elaborate detail to the specific content being dealt with in classrooms (Torrance, 1977:16) (*cf.* 2.4.3.2). They can offer intriguing and entertaining insights into public mood, cultural assumptions of an age, as well as the attitudes towards key events or trends of the times (Bickford, 2011:65-80; Shoob & Stout, 2008:88) (*cf.* 3.9.1). Political cartoons are of vital importance in the Social Sciences classroom, as they require a good deal of knowledge of the precise historical context to grasp them (Bickford, 2011:65-80; Shoob & Stout, 2008:88) (*cf.* 3.9.1). Perhaps the reason as to why this particular resource is not being used is because it requires more complex cognitive thinking in comparison to the use of other resources. It may be seen as difficult for learners to interpret these cartoons. Teachers need to ensure that the basic cognitive skills are in place before advancing to using political cartoons (Orlich *et al.*, 2004:20) (*cf.* 2.3.).

The responses to question 1.2, regarding the use of photographs in the teaching of Social Sciences, reveal more positive results than the results for political cartoons. Only 24.8% of teachers almost always make use of photographs in their teaching, while a further 29.1% often use photographs in their teaching. This, according to the researcher could be considered an

average result, as there is no clear majority either for or against the use of photographs. A further 31.1% of learners indicated that teachers sometimes use photographs, while 15% stated that photos are almost never used. The implication is therefore that to some degree teachers are apparently making use of photographs, but they are not being utilized enough. The data implies that there is room for improvement with regard to the implementation of photographs in the Social Sciences classroom, as 46.1% only seldom or almost never use photographs. Historical or geographical photographs can also aid in the development of elaborative thinking, as they provide detail which can enhance thinking in the Social Sciences classroom (Torrance, 1977:16) (*cf.* 2.4.3.2), for example in History where photos of Nazi Germany can be analysed, or aerial photographs in Geography. Photographs, along with other primary source documents, are engaging and should become an important part of any Social Sciences educational experience if available (Shoob & Stout, 2008:73) (*cf.* 3.9.2). A possible reason as to why photographs are not being used sufficiently could be linked to availability.

The data obtained for question 1.3 relating to the usage of maps in the Social Sciences classroom have a strong positive response, as 76.2% of the learners indicate that their teachers almost always and often use maps. A further 17% state that their teacher sometimes uses maps, while 6.8% indicate that this resource is almost never used. The implication of this response is that teachers are indeed making use of maps in the teaching of Grade 9 Social Sciences that according to the researcher, could lead to better creative elaboration. Maps help provide more elaborate detail to the specific work being covered, which ultimately nurtures enhanced idea formation (Torrance, 1977:13) (*cf.* 2.4.3.2). Maps during the teaching of both History and Geography are of vital importance, so much so that one cannot teach Social Sciences without the use of maps (Shoob & Stout, 2008:84-87) (*cf.* 3.9.3). Maps are useful, as learners can graphically relate to what is being taught, and more can be expressed in a single map than by volumes of speech or writing (Shoob & Stout, 2008:84-87) (*cf.* 3.9.3). Fortunately, with regard to the research, it would appear that teachers are making good use of maps in their teaching, therefore map use in Social Sciences appears not to be a problem It

will, however, be important to convince the 23.8% who sometimes and almost never use maps, of the merits of using maps.

Regarding the data for question 1.4 relating to teachers making use of textbooks while teaching, 41.4% of learners responded that their Social Sciences teachers almost always use textbooks in teaching, while a further 11.8% note that teachers use textbooks often. This is an average result, as the combined percentage equals 53.2%. A further 20.8% state that their teachers only sometimes use textbooks, while 26% indicate that this resource is almost never used. The data imply that teachers are, to some extent, making use of textbooks in their teaching of Grade 9 Social Sciences, but apparently, a few teachers do not utilize textbooks effectively. Based on the aforementioned data, the researcher argues that there is room for improvement, as Social Sciences teachers must effectively utilize textbooks to nurture elaborative thinking. Textbooks can nurture elaborative thinking, in the sense that they elaborate on the content being dealt with in multiple ways, incorporating maps, cartoons and photos together in a concise manner. In this way, textbooks enhance ideas and allow learners to provide more detail in their responses (Torrance, 1977:16) (*cf.* 2.4.3.2). Textbooks will enable learners to locate information that will make the learning content more accessible and comprehensible to them (Killen, 2007:78) (*cf.* 3.9.4). It is important to remember that no textbook can ever replace the teacher. It is, however, a given that many schools in South Africa have poor or no library facilities. Therefore, the use of at least one textbook is more often than not the only aid readily available in the classroom (Killen, 2007:78) (*cf.* 3.9.4). To interpret the findings, it is possible that availability of textbooks is causing only some schools that have the funds to use this resource, while other schools simply cannot afford to buy more textbooks. Perhaps, also, schools that are more fortunate have decided to use more technologically advanced resources and have shifted away from textbook use. What should also be noted, is that the over use of textbooks can hamper learner inquisitiveness, as most if not all of the information is provided, thus effectively negating the learner's own search for answers, thus hampering creative input by the learner.

Data obtained for question 1.5 focused on the Social Sciences teachers' use of the chalkboard in the classroom. Data obtained indicate that 50.1% of learners agreed that their teachers almost always make use of the chalkboard, while a further 18.9% state that their teachers use the chalkboard often. This indicates that the majority of teachers (69%) are utilizing the chalkboard in the Social Sciences classroom as a resource. A further 16.5% indicate that their teachers sometimes use the chalkboard, while 14.5% state that this resource is almost never used. The data could point to the fact that Grade 9 Social Sciences teachers are indeed utilizing the chalkboard, which can help nurture creative elaboration. What must be looked at is whether the chalkboard is being utilized effectively, as this can affect the development of elaborative thinking. The chalkboard needs to be used in conjunction with other resources, in order for learners to elaborate on their thinking, thus enhancing their ideas (Torrance, 1977:16) (*cf.* 2.4.3.2). It seems as if the teachers comply with the assertion of Kincheloe (2001:12), that chalkboards, which are traditional visual aids, are a very important part of classroom teaching in both History and Geography (*cf.* 3.9.5). A teacher has to find ways to keep the learners interested and engaged in the lesson. A good strategy according to the researcher would be to invite learners to write their own ideas on the chalkboard during activities. This will encourage class participation (Kincheloe, 2001:14) (*cf.* 3.9.5). Education in South Africa is currently geared toward innovation in the classroom and integration with technology. However, that being said, it is common knowledge that in many schools across South Africa teachers can use only the chalkboard as a resource as their schools simply cannot afford to buy more technologically advanced resources. If other resources are available, every effort must be made to utilize them, instead of solely relying on the chalkboard (Killen, 2007:79) (*cf.* 3.9.5). According to the researcher, writing on the chalkboard should not, however, be regarded as a negative teaching resource. An innovative teacher can still nurture thinking and involve learners in the class. Through skilful didactic questioning, the teacher can probe learners' thinking abilities and enhance them while engaged in chalkboard work (Kincheloe, 2001:14) (*cf.* 3.8.15).

Following the use of the chalkboard, question 1.6, related to the use of the overhead projector as a resource. Data obtained indicate that 40.8% of learners were of the opinion that their Social Sciences teacher almost never makes use of the overhead projector, with a further 29.3% stating that it is sometimes used. One student did not respond to this questionnaire item, and is indicated as a missing response (0.3%). Moreover, a further 14.3% of learners note that their teacher almost always uses the overhead projector, while 15.3% responded that their teacher often makes use of it. The data are interpreted as negative, indicating the possible underuse of the overhead projector. The overhead projector as a resource in the Social Sciences classroom can indeed nurture elaborative thinking, as it can potentially make use of both textual and graphical material with which to teach learners (Killen, 2007:81) (*cf.* 3.9.6). The overhead projector therefore supplements the lesson and enriches the learners' understanding, enabling elaborative thinking (Torrance, 1977: 16) (*cf.* 2.4.3.2). The overhead projector is still more flexible and useful for all except uninterrupted, rehearsed presentations (Ornstein & Lasley, 2000:25) (*cf.* 3.9.6). According to the researcher, the overhead projector is usually under the control of the teacher: this means that it is by default an instrument of teacher-centred instruction, which could stifle creative input by the learners. The researcher argues that teachers need to be wary of placing transparencies onto the projector and requesting learners simply to copy down all the information on the transparency, as this could reflect poor teaching, where learners are passive and nurturing thinking low on the agenda of teaching (Gunter *et al.*, 2010:70) (*cf.* 3.3.3). Teachers should be using their projectors to enhance learning, to foster thinking in the classroom (Killen, 2007:81) (*cf.* 3.9.6). In the current socio-economic environment in South Africa, many schools around the country simply do not have enough funds to afford buying overhead projectors for their classrooms. In many rural and Township Schools across the nation, teachers are left with the bare minimum of resources for teaching (Ornstein & Lasley, 2000:27) (*cf.* 3.9.6).

Question 2 focused on learners being allowed to explain their answers in detail. Data obtained indicate that 38.3% of learners agree that they are almost always allowed to answer in detail, with a further 28.6% allowed to

answer in detail often. According to the researcher, the data indicate a very positive result towards the nurturing of creative elaboration. A further 25.8% indicate that they are only sometimes allowed to answer in detail, while 7.0% state that this almost never happens. The researcher is of the opinion that the data indicate that teachers are nurturing a learning environment in which learners may provide elaborate detail to their answers. By allowing learners to provide elaborate detail to their answers, they are allowed to express their own and/or new understanding, which requires more than merely filling in blank spaces or identifying multiple choice answers (Torrance, 1977:16) (*cf.* 2.4.3.2). This response appears to be in line with a learner-centered approach to teaching that fosters learner understanding and participation in the construction of knowledge (Borich, 2003:94; Kramer, 2006:103) (*cf.* 3.4.1, 3.4.3).

In relation to question 3 that focused on learners themselves providing short answers to questions, the following data were revealed. Data obtained indicate that 46.9% of learners sometimes provide short answers, with a further 11.0% of learners stating that they almost never provide short answers. A further 0.3% of responses are reported as being missing. A further 15% of learners indicate that they almost always provide short answers, while 26.8% note that they often provide short answers. The researcher argues that the responses indicate a positive result towards the nurturing of creative elaboration, but still falling into the average margin, ultimately implying that there is room for improvement. The interpretation of this question is that the 41.8% of learners who almost always and often provide short answers to questions need to be encouraged to provide detailed responses to questions and that the effective utilization of resources can nurture the learners' elaborative thinking (Torrance, 1977:16) (*cf.* 2.4.3.2).

In summary, the researcher tends to view the data obtained from section B, pertaining to creative elaboration, as not positive. It appears as if Grade 9 Social Sciences teachers are mainly using the chalkboard, textbooks and maps, and under-using political cartoons and photographs. This practice is not in line with the literature where it is revealed that ideal is that teachers would be utilizing a variety of resources to nurture the learners' elaborative thinking

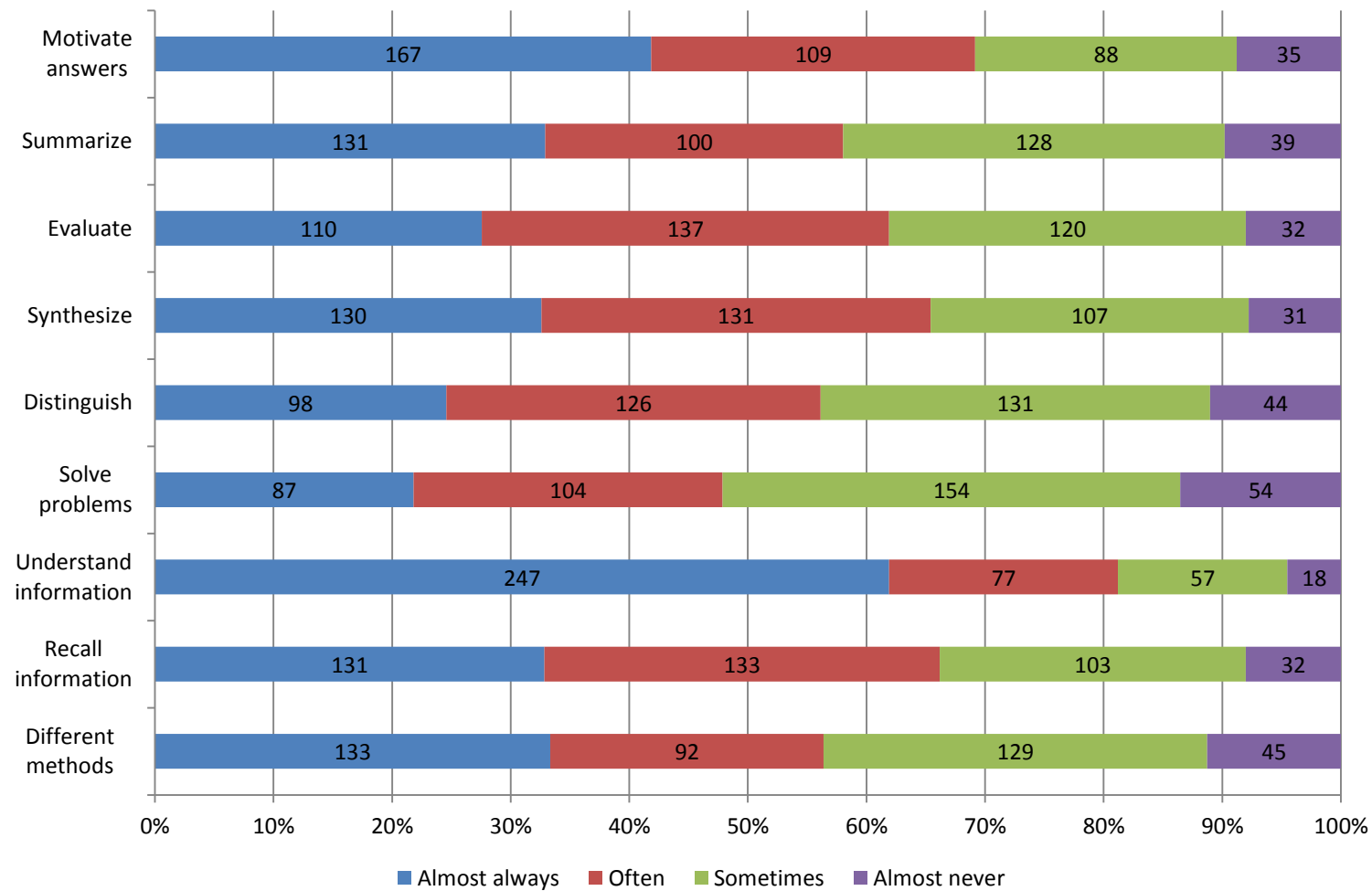
(De Beer, 2010:128; Killen, 2007:82) (*cf.* 3.9). Based on the data, the researcher argues that a stronger focus could be placed on the nurturing of elaborative learning in the classrooms that took part in the research, in order to make learning more interesting and to enhance and deepen the understanding of subject content (Torrance, 1977:16) (*cf.* 2.4.3.2). Furthermore, a stronger focus on the nurturing of elaborative thinking will lead to opportunities for learners to communicate their learning (Niehuis *et al.*, 2001:118) (*cf.* 2.4.3.2).

The table below represents the data obtained for Section C of the questionnaire, relating to **creative fluency**.

The ideal responses for this section were that teachers frequently made use of different teaching methods that would allow for a variety of thinking skills to be nurtured, especially the skill of synthesis which is directly related to creative thinking.

Table 5.11: Learner responses: Creative thinking: Section C: Fluency

Question	Almost always		Often		Sometimes		Almost never		Missing	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1. My teacher makes use of different methods when teaching.	133	33.3	92	23.1	129	32.3	45	11.3	0	0.0
2.1 When doing activities in class, my teacher expects me to recall previous information.	131	32.8	133	33.4	103	25.8	32	8.0	0	0.0
2.2 When doing activities in class, my teacher expects me to understand information.	247	61.9	77	19.3	57	14.3	18	4.5	0	0.0
2.3 When doing activities in class, my teacher expects me to solve problems on my own.	87	21.8	104	26.1	154	38.6	54	13.5	0	0.0
2.4 When doing activities in class, I must distinguish between important and unimportant information.	98	24.6	126	31.6	131	32.8	44	11.0	0	0.0
2.5 When doing activities in class, my teacher expects me to synthesize information.	130	32.6	131	32.8	107	26.8	31	7.8	0	0.0
2.6 When doing activities in class, I must evaluate information in terms of advantages and disadvantages.	110	27.6	137	34.3	120	30.1	32	8.0	0	0.0
2.7 When doing activities in class, my teacher expects me to summarize information.	131	32.7	100	25.1	128	32.1	39	9.8	1	0.3
2.8 When doing activities in class, my teacher expects me to motivate my answers.	167	41.8	109	27.3	88	22.1	35	8.8	0	0.0



The questionnaire statements in this particular section were based on the work of Bloom and his taxonomy for thinking, involving higher- and lower-order questioning (Bloom, 1956:9) (*cf.* 2.3).

Regarding question 1, which relates to Social Sciences teachers making use of different teaching methods, 33.3% of the learners indicate that the teachers almost always use different methods, whereas 23.1% indicate that the teachers use different methods often. When these averages are added, the responses indicate an average result (56.4%). However, 32.3% of the learners indicate that teachers only sometimes use different methods, with a further 11.3% indicating different methods are almost never used. The implication is therefore that some of the Grade 9 Social Sciences teachers are apparently making use of different methods while teaching, but that more diversity would be helpful to nurture creative thinking. The question wished to determine whether or not teachers make use of different teaching methods, specifically to enhance thinking at different levels of complexity as stipulated in Bloom's Taxonomy (Bloom, 1956:9) (*cf.* 2.3). In order to promote the synthesis skill, which is required for the nurturing of creative thinking (Bloom, 1956:9), the basic skills that precede synthesis, namely knowledge, understanding, application and analysis, also need to be nurtured in the classroom (Orlich *et al.*, 2004:20) (*cf.* 2.3). The practical application of Bloom's Taxonomy within the Social Sciences classroom can be carried out through the use of a variety of teaching strategies. In this regard strategies that promote learner-centred teaching are regarded being more effective than teacher-centred strategies for nurturing creative thinking. Learner-centred teaching strategies such as problem solving, debate and cooperative learning encourage wider and deeper thinking, individual expression, curiosity and interest, sharing of knowledge which are essential for nurturing creative thinking (Freiberg, 2002:56; Killen 2007:57; Loyens *et al.*, 2008:414; McKee *et al.*, 2007:395; Monyai, 2006:118-120; Novak & Cañas, 2006:56; Warburton, 2006:36) (*cf.* 3.8.3, 3.8.4, 3.8.5, 3.8.6, 3.8.8, 3.8.9, 3.8.13).

Data obtained for question 2.1, regarding the factual recall or remembering of information, revealed that 32.8% of participants indicate that their teacher almost always makes use of this method, whereas a further 33.4% note that

their teacher often makes use of factual recall. This is a vast majority, making up 66.2% of the responses, indicating that teachers make use of recall of information on a continuous basis in the Social Sciences classroom. However, 25.8% of learners indicate that factual recall is only sometimes used, with a further 8% stating that factual recall is almost never used. The implication is therefore that it appears as if most of the Grade 9 Social Sciences teachers that took part in the study are utilizing factual recall on a frequent basis. This response implies that many teachers apparently focus on nurturing the lowest thinking level, namely that of knowledge (Bloom, 1956:9) (*cf.* 2.3). This response could point to the fact that creative thinking, which is a higher-order thinking skill, might be neglected. The researcher is concerned that there might be a strong focus on transmission and reception teaching in many of the Social Sciences classrooms, which does not allow for exploration and inquiry (Burden & Byrd, 2003:120; Monyai, 2006:107-109) (*cf.* 3.3). This approach to teaching implies that the teachers have a realist approach to knowledge acquisition, which does not regard individual or social construction of knowledge by the learner as important (Schraw & Olafson, 2003:180) (*cf.* 3.3.2).

Question 2.2 focused on activities that require learners to understand information. Data obtained indicate that 61.9% of learners agree that they are almost always required to understand information, with a further 19.3% stating that they often need to understand information. These responses display a positive result (81.2%). In contrast to the aforementioned response, 14.3% of learners indicate that they only sometimes need to understand information, with a further 4.5% stating that they almost never need to understand. The implication is therefore that Grade 9 Social Sciences teachers are apparently promoting understanding of information during teaching and learning. This specific question focused on the understanding of information, which is linked with the second lowest thinking level according to Bloom's Taxonomy, that of comprehension (Bloom, 1956:9) (*cf.* 2.3). It is evident from the data that teachers are to a large extent stimulating learners on the comprehension level of thinking. However, this should not be the only level being stimulated. This particular item received the most positive feedback from the participants in

this section, which indicates that teachers are very frequently nurturing lower-order thinking as opposed to varying the work according to the different levels of thinking.

Question 2.3 relates to the Social Sciences teacher expecting learners to solve problems on their own. Data obtained reveal that 21.8% of learners agree that this is almost always the case, with a further 26.1% indicating it happens often. A further 38.6% of learners' state that the teacher only sometimes expects them to solve problems on their own, while 13.5% indicate that this almost never happens. These responses indicate a mixed response from learners, as there is no clear majority view on this particular issue. According to the researcher, it seems that teachers are only seldom utilizing problem solving strategies in the activities being set up, which can impact negatively on the nurturing of creative thinking. This specific question focused on learners solving problems on their own, which is linked with the fifth thinking level, that of synthesis, which is considered a higher-order thinking skill (Bloom, 1956:9) (*cf.* 2.3). Problem solving is regarded as the most intricate of all intellectual functions, and links with synthesis in the sense that when solving problems, ideas need to be synthesized in order to come up with solutions (Lin *et al.*, 2005:36). It is clear from the data that teachers need to improve on their stimulation of the learners' synthesis of knowledge and to allow them to solve problems, as a large percentage (52.1%) indicated that teachers rarely do this. This particular question received the most negative feedback from participants in this section, which could imply that synthesis is not effectively being nurtured in the Grade 9 Social Sciences classroom, ultimately leading to the hampering of creative thinking. Nurturing problem solving is especially important for the development of learners' curiosity and coming up with original solutions (Loyens *et al.*, 2008:414; Morrison *et al.*, 2011:312) (*cf.* 3.8.4).

Question 2.4 focused on the Social Sciences teacher expecting learners to distinguish between important and unimportant information while performing activities. Data obtained reveal that 24.6% of learners agree that this is almost always expected, with a further 31.6% of learners indicating it is often expected. A further 32.8% state that they are only sometimes expected to

distinguish between important and unimportant information, while 11% state that this is almost never expected of them. This is once more a very mixed response, with no clear majority viewpoint, with the implication that the skill of analysis is not nurtured by all the Grade 9 Social Sciences teachers who took part in the research. This specific item focused on learners being given opportunities to distinguish between important and unimportant information, which is linked with the fourth thinking level, that of analysis, which is considered to be the first higher-order thinking skill (Bloom, 1956:9) (*cf.* 2.3). It is evident from the data that teachers seemingly need to improve on their stimulation of the learners' analysis skills and to allow them to distinguish between important and unimportant information, as a large percentage (43.8%) indicated that teachers only sometimes and almost never use this.

Question 2.5 elicited responses in relation to the Social Sciences teacher expecting learners to synthesize information when performing activities. Data obtained reveal that 32.6% of learners agree that this is almost always expected of them, with a further 32.8% indicating that this is often expected. A further 26.8% state that they are only sometimes expected to synthesize information, while 7.8% indicate that this almost never happens. A majority view is evident (65.4%), which indicates that the execution of higher-order cognitive skills is required. This specific item focused on learners synthesizing information when performing activities, which is linked with the fifth thinking level in Bloom's taxonomy, that of synthesis, which is considered to be a higher-order thinking skill (Bloom, 1956:9) (*cf.* 2.3). It is evident from the data that many of the teachers appear to indeed stimulate the learners' synthesis skills and are allowing them to put information together, as a large percentage (65.4%) indicated that teachers almost always and often do this. The stimulation of the synthesis skill is important, as it is the first level of thinking that is directly related to creative thinking (Bloom, 1956:9) (*cf.* 2.3). However, that being said, one cannot simply state that creative thinking is being nurtured in the classroom based solely on these findings, as there are many other facets that need to be taken into account when nurturing creative thinking, such as originality, flexibility and elaboration.

Regarding question 2.6, learners were asked to respond to whether the Social Sciences teachers ask learners to evaluate information in terms of advantages and disadvantages while performing activities. Data obtained reveal that 27.6% of learners agree that this is almost always the case, with a further 34.3% stating that it happens often. A further 30.1% of learners indicate that they only sometimes evaluate information, while 8% state that this almost never happens. A majority view is evident (61.9%), indicating that activities that require the application of evaluation are probably being utilized in the Social Sciences classroom, although it can be improved upon, in order to get the 38.1% who apparently do not often nurture evaluation on board. This specific item focused on learners evaluating information in terms of advantages and disadvantages when performing activities, which is linked with the sixth and highest thinking level, that of evaluation, which is considered to be a higher order thinking skill (Bloom, 1956:9) (*cf.* 2.3).

Question 2.7 focused on responses regarding the Social Sciences teacher expecting learners to summarize information while performing activities. Data obtained reveal that 32.7% of learners agree that this is almost always evident, with a further 25.1% stating that it happens often. A further 32.1% of learners indicate that they are only sometimes expected to summarize information, while 9.8% agree that this almost never happens. The implication is therefore that Grade 9 Social Sciences teachers are apparently infrequently making use of summaries in their teaching and this can be improved upon. This specific question focused on learners summarizing information when performing activities, which is linked with the cognitive skill of meta-cognition. Meta-cognition refers to a stage of thinking that involves active control over the procedure of thinking. These actions include planning the way to approach learning; monitoring comprehension and evaluating progress towards completion of a task (Dulonsky & Bjork, 2008:56) (*cf.* 2.3). The data indicate that teachers are indeed stimulating the learners' summarizing skills, as a majority (57.9%) indicate that teachers almost always and often do this. It is, however, necessary that all teachers should undertake summarizing activities a lot more frequently within their practice as Grade 9 Social Sciences teachers, in order to nurture fluency of ideas among learners. This particular

skill is being promoted less frequently than the previous skill of evaluation. It is disconcerting that 42.1% appear not to focus on equipping learners with skills to summarize information.

Question 2.8 relates to the Social Sciences teacher expecting learners to motivate their answers to questions while performing activities. Data obtained reveal that 41.8% of learners agree that this is almost always expected of them, with a further 27.3% stating it occurs often. A further 22.1% of learners agree that they are only sometimes expected to motivate their answers, while 8.8% indicate that this is almost never the case. A majority view is evident (69.1%), which implies that learners seemingly are requested to motivate their answers during the teaching of Social Sciences. However, there is still room for improvement in this area, as a number of teachers apparently do not create opportunities for learners to motivate their answers. This specific item focused on learners motivating their answers to questions when performing activities, which is also linked with the cognitive skill of meta-cognition. Which involves the examination of the own thought processes (Dulonsky & Bjork, 2008:56) (*cf.* 2.3). The data indicate that teachers are apparently indeed stimulating the learners' skills to motivate their answers, as a majority (69.2%) indicate that teachers almost always and often do this. It is, however, necessary that all teachers should try to include questions that require motivation a lot more frequently within their practice as Grade 9 Social Sciences teachers, in order to nurture fluency of ideas among learners.

In summary, the responses obtained for this section were not completely in line with the ideal responses as envisaged by the researcher. It was hoped that all the teachers would be utilizing different strategies on a frequent basis that would provide opportunities for the development of all cognitive skills. An area of concern to the researcher is that many of the teachers appear to be only nurturing lower-order skills in the activities that must be carried out by the learners, thus not nurturing fluency of ideas. In particular, the underuse of the higher-order thinking skills such as problem solving and summarizing, which involves the skill of synthesis, appear to be problematic. According to the researcher, the responses reveal that teachers could be encouraged to apply more teaching strategies that would promote indirect, independent, interactive

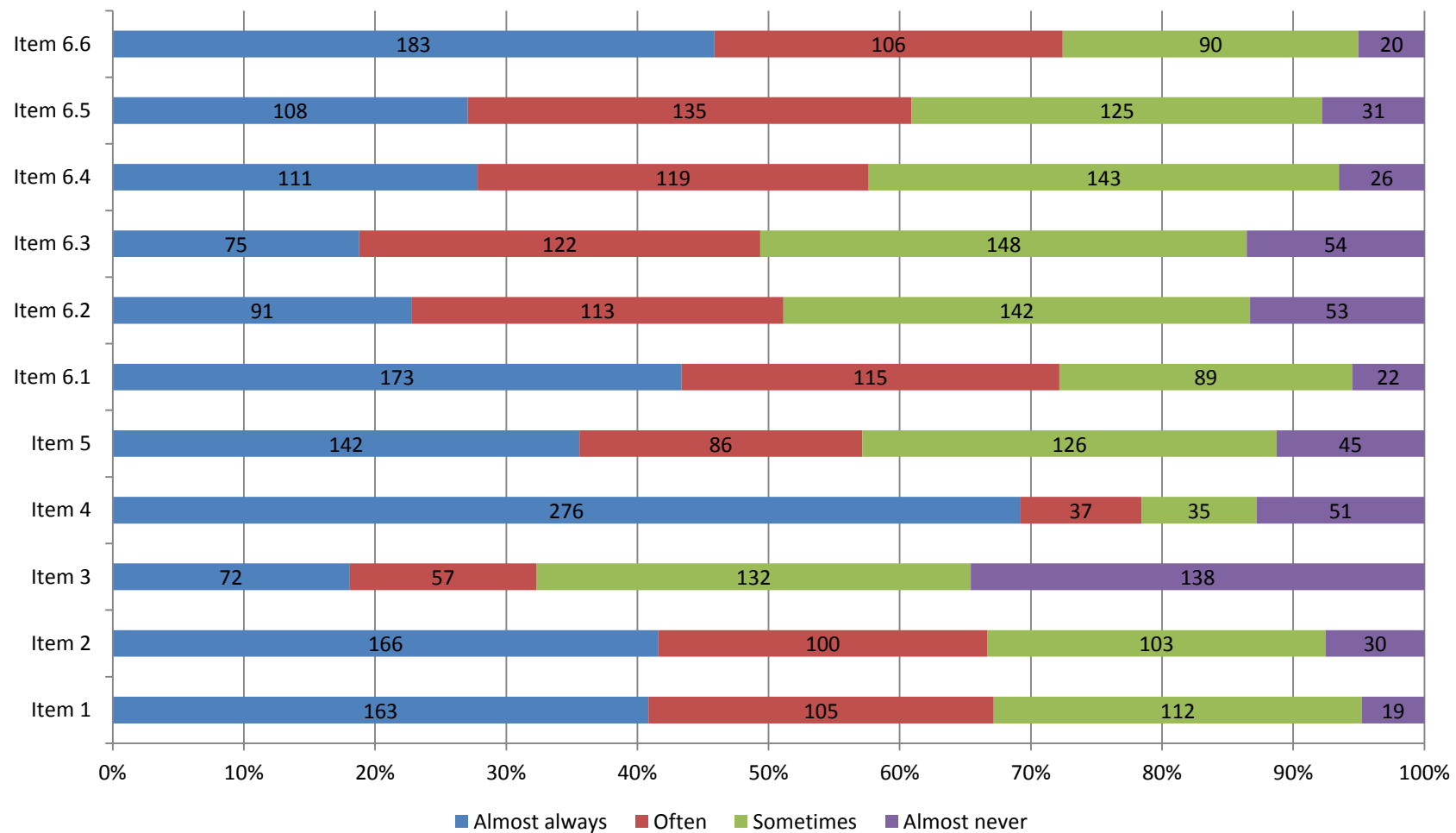
and experiential learning that would lead to activities where learners are actively involved in the construction and application of knowledge (Borich, 2003:94; Kim, 2005:8; Ognibene, 2007:24-27; Sessoms, 2008:38) (*cf.* 3.4, 3.5, 3.6). According to the researcher, the data do not convincingly indicate that all the Social Sciences teachers who took part in the research nurture fluency. This observation could imply that many teachers resort to the mere recalling and remembering of knowledge that is learned, and possibly do not allow learners to find more viable solutions to problems (Pikulsky & Chard, 2005:512; Torrance, 1977:15) (*cf.* 2.4.3.2).

The next section deals with the data analysis and interpretation of Section D in the questionnaire, which dealt with **flexibility**.

The ideal responses for this particular section that focused on flexibility would be if the learners are often allowed to provide their own ideas, to provide different answers to questions or provide more than one answer. Also, ideally, teachers should not often give similar activities to all learners. The second section of the questionnaire items in this section (6.1 - 6.1) relates to the use of questioning to stimulate different modes of thinking, based on De Bono's Six Thinking Hats strategy (*cf.* 3.8.15). Ideally, according to the researcher, the teacher should stimulate all modes of thinking, in order to nurture flexible thinking.

Table 5.12: Learner responses: Creative thinking: Section D: Flexibility

Question	Almost always		Often		Sometimes		Almost never		Missing	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1. My teacher allows me to provide my own ideas.	163	40.9	105	26.3	112	28.1	19	4.8	0	0.0
2. My teacher allows different answers to questions.	166	41.6	100	25.1	103	25.8	30	7.5	0	0.0
3. My teacher does not have a problem if I do not have an answer to a question.	72	18.0	57	14.3	132	33.1	138	34.6	0	0.0
4. My teacher gives everybody in the class similar activities to perform.	276	69.1	37	9.3	35	8.8	51	12.8	0	0.0
5. My teacher allows me to provide more than one answer to a question.	142	35.5	86	21.6	126	31.6	45	11.3	0	0.0
6.1 When asking questions, my teacher usually asks questions based on remembering information.	173	43.4	115	28.8	89	22.3	22	5.5	0	0.0
6.2 When asking questions, my teacher usually asks questions based on my feelings or opinions.	91	22.8	113	28.3	142	35.6	53	13.3	0	0.0
6.3 When asking questions, my teacher usually asks questions based on finding disadvantages.	75	18.8	122	30.6	148	37.1	54	13.5	0	0.0
6.4 When asking questions, my teacher usually asks questions based on finding advantages.	111	27.8	119	29.8	143	35.9	26	6.5	0	0.0
6.5 When asking questions, my teacher usually asks questions based on coming up with a new/original answer.	108	27.1	135	33.8	125	31.3	31	7.8	0	0.0
6.6 When asking questions, my teacher usually asks questions that force me to motivate my answers.	183	45.8	106	26.6	90	22.6	20	5.0	0	0.0



Question 1 relates to the Social Sciences teacher allowing learners to provide their own ideas. The data obtained reveal that 40.9% of learners agree that their teachers almost always allow them to provide their own ideas, with a further 26.3% stating that this is often done. Moving to the negative results, only 28.1% of learners indicate that this is sometimes done, with 4.8% stating that it is almost never done. The implication therefore is that teachers are apparently allowing learners to provide their own ideas in the Grade Social Sciences classroom, which is a positive response. As this section deals with flexible thinking, it can be defined as the generation of ideas that have multiple possibilities or realms of thinking (Torrance, 1977:16) (*cf.* 2.4.3.2). Therefore, according to the researcher, if the teacher allows learners to provide their own ideas instead of just understanding the teacher's ideas, they can start seeing things from different perspectives. The response could also indicate that many of the teachers are creating a classroom climate that is open and allows flexible thinking, which according to Hennessey (2004:35), Marzano *et al.* (1988:61) and Paul (1985:36) appears to be most desirable. According to Hennessey (2004:35) (*cf.* 2.6.7), this type of classroom climate fosters psychological safety and intellectual freedom within a structure where individuals respect one another as persons of unconditional worth. By allowing learners to provide their own ideas, teachers will indeed nurture creative thinking.

Question 2 focuses on the Social Sciences teacher allowing different answers to questions. The data obtained reveal that 41.6% of learners agree that their teachers almost always allow different answers to questions, with a further 25.1% stating that this is often done. Moving to the negative results, 25.8% of learners indicate that this is only sometimes done, with 7.5% stating it is almost never done. The implication here is that it would appear that teachers are indeed allowing learners to provide different answers to questions. According to the researcher, if the teacher allows learners to provide different answers to questions, they can start to see things from different perspectives and solve problems in different ways, instead of only providing one answer to every question, which limits the learner's flexible thinking. Once more it appears that many of the teachers who took part in the study respect the

learners right to voice an opinion, and are creating classrooms that invite intellectual freedom which is important for the nurturing of creative thinking (Hennessey, 2004:35; Marzano *et al.*, 1988:61; Paul, 1985:36; Sullivan & Harper, 2009:1-20) (*cf.* 2.6.7). As the data, according to the researcher, revealed positive results, it could be said that creative thinking in the form of flexibility is being nurtured to some extent.

Question 3 aims to reveal data in relation to the Social Sciences teacher having a problem if learners are unable to answer a question. Data obtained reveal that 18% of learners agree that their teacher almost always does not have a problem when they cannot answer a question, with a further 14.3% stating that this occurs often. A further 33.1% indicate that teachers sometimes do not have a problem when learners cannot answer questions, while 34.6% indicate that their teachers almost never have a problem when learners cannot answer questions. The implication to the researcher is that teachers apparently are not too fond of the idea that learners cannot answer questions, as the majority view indicated that the teacher requires an answer. If teachers have an issue with learners being unable to answer questions, the researcher tends to think that it would appear that they require their learners to provide some form of answer. This could be interpreted as a positive outlook, as learners who are unable to provide answers need to be encouraged to search for answers, thus nurturing their fluency and flexibility. This once more links up with the type of classroom climate that is being fostered. Challenge and freedom are two of Ekvall's (1996:105) (*cf.* 2.6.7) ten dimensions of creative climate, which appear to be nurtured by some of the teachers who took part in the study. In support of Ekvall (1996:105) (*cf.* 2.6.7), the researcher argues that in order to nurture creative thinking, teachers should challenge learners to complete tasks and provide an answer, which appears to be the case from the findings.

Question 4 addresses the issue whether the Social Sciences teacher provides similar activities to every learner in the classroom. Data obtained reveal that 69.1% of learners agree that their teacher almost always gives them similar activities, with a further 9.3% stating that it is often done. A further 8.8% state that their teacher only sometimes gives similar activities, while 12.8% indicate

that this almost never happens. This response provides an indication that many of the Social Sciences teachers are providing similar activities to all the learners in the classroom, irrespective of weakness or giftedness. The term "gifted and talented" when used in respect to learners means learners who give evidence of high performance capability in areas such as intellectual, creative, artistic or leadership capacity, or in specific academic fields, and who require services or activities not ordinarily provided by the school, in order to fully develop such capabilities (Hennessey, 2004:35) (*cf.* 2.6.6). The opposite is therefore true of weaker learners, who lack certain capabilities in the academic environment. From the findings, it would appear that if similar activities are frequently given to all learners, that Grade 9 Social Sciences teachers are not accommodating weaker and gifted learners in terms of the nurturing their respective creative abilities at different levels. According to the researcher, this could seriously hamper these learners' creative development, as the gifted learners might not being **challenged** sufficiently and the weaker learners are not being **guided** to achieve their full creative potential.

Question 5 relates to the Social Sciences teacher allowing learners to provide more than one answer to a question. Data obtained reveal that 35.5% of learners agree that their teacher almost always allows more than one answer to a question, with a further 21.6% stating that this happens often. A further 31.6% indicate that their teachers only sometimes allow different answers to questions, while 11.3% indicate that this almost never happens. The learners appear to have differing perceptions, as there is no clear majority view regarding this question. According to the researcher, if the teacher allows learners to provide multiple answers to questions, learners can start to generate multiple ideas and use those ideas as answers, instead of only providing one answer to every question, which limits the learner's flexible thinking. This observation of the researcher implies that the classroom climate should provide learners with psychological safety where they will feel that their ideas are respected and valued (Hennessey, 2004:35; Marzano *et al.*, 1988:61 Paul, 1985:36) (*cf.* 2.6.7). As the data revealed mixed viewpoints, it could be argued that some of the teachers who took part in the study are nurturing creative thinking in the form of flexibility to some extent.

Question 6.1 relates to Social Sciences teachers asking questions based on remembering information. Data obtained reveal that 43.4% of learners agree that these questions are almost always asked, with a further 28.8% stating that these questions are asked often. A further 22.3% indicate that asking questions based on remembering information is only sometimes asked, while 5.5% state that these questions are almost never asked. A majority viewpoint (72.2%) is evident, suggesting that Social Sciences teachers are asking many questions based on factual recall. The implication for the nurturing of flexibility can be seen as negative if these are the only types of questions being asked. Question 6.1 is linked with **white hat** thinking (Birdi, 2005:102-111; De Bono, 1985:12) (*cf.* 3.8.15) which deals with facts and recall of information. When asking stimulating questions, they develop interest and motivate learners to become actively involved in lessons, as well as develop critical thinking skills and inquiring attitudes (McKenzie, 2007:29) (*cf.* 3.8.15). Regarding the responses to this questionnaire item, it is evident that Social Sciences teachers seemingly ask white hat questions quite frequently, which is obvious, considering the content that must be dealt with in the class. However, this type of question cannot be the only one asked, as it stimulates only the lowest level of thinking, according to Bloom's Taxonomy (Bloom, 1956:9) (*cf.* 2.3).

Question 6.2 elicits responses in relation to Social Sciences teachers asking questions based on feelings and opinions. Data obtained reveals that 22.8% of learners agree that these questions are almost always done, with a further 28.3% stating that these questions are asked often. A further 35.6% indicate that asking questions based on feelings and opinions is only sometimes asked, while 13.3% state that these questions are almost never asked. According to the researcher, the responses to this question represent a mixed viewpoint, implying room for improvement with regard to the nurturing of thinking. Question 6.2 is linked to **red hat** thinking, which deals with the expression of opinions and emotions (Birdi, 2005:102-111; De Bono, 1985:12) (*cf.* 3.8.15), and actively involving learners in a lesson (McKenzie, 2007:29) (*cf.* 3.8.15). Regarding the findings, it is evident that many of the Social Sciences teachers apparently are asking red hat questions, but there is quite some room for improvement. The researcher is of the opinion that learners

need to be able to share their own personal views and opinions, so that they can learn from one another's ideas, which could foster flexible thinking.

Question 6.3 links to Social Sciences teachers asking questions based on finding disadvantages. Data obtained reveal that only 18.8% of learners agree that these questions are almost always asked, with a further 30.6% stating that these questions are asked often. A further 37.1% indicate that asking questions based on finding disadvantages is only sometimes asked, while 13.5% note that these questions are almost never asked. The researcher argues that the responses indicate once again a mixed viewpoint, implying that there is room for improvement when asking this type of question in the Social Sciences classroom. Question 6.3 is linked with the **black hat** thinking (Birdi, 2005:102-111; De Bono, 1985:12) (*cf.* 3.8.15), which deals with thinking geared to finding disadvantages or negative aspects and problems. Stimulating questions should develop critical thinking skills and inquiring attitudes (McKenzie, 2007:29) (*cf.* 3.8.15). From the findings, it is evident that Social Sciences teachers are asking black hat questions to some extent, but apparently there are teachers who do not engage their learners in this type of thinking. According to the researcher, this particular mode of thinking nurtures critical thinking and analysis skills, which are of fundamental importance to Social Sciences learners. In particular, the researcher is of the opinion that learners need to be encouraged to be flexible when looking at History sources. They need to be critical, in order to detect bias and subjectivity.

As opposed to question 6.3, question 6.4 relates to Social Sciences teachers asking questions based on finding advantages. Data obtained reveal that 27.8% of learners agree that these types of questions are almost always asked, with a further 29.8% stating that these questions are asked often. A further 35.9% indicate that asking questions based on finding advantages is only sometimes asked, while 6.5% state that these questions are almost never asked. The responses for this question display a small majority view (57.6%), implying that some of the Social Sciences teachers are asking these questions, but it can be improved upon by their being more flexible in their approach to asking questions. Question 6.4 is linked with the **yellow hat** thinking (Birdi, 2005:102-111; De Bono, 1985:12) (*cf.* 3.8.15), which deals with

thinking that focuses on finding advantages or positive aspects. According to McKenzie (2007:29) (*cf.* 3.8.15), questions posed by teachers should develop critical thinking skills and inquiring attitudes, which could refer to evaluating something in terms of its merits. Regarding the findings, it seems that a number of Social Sciences teachers are asking yellow hat questions, but again there is room for improvement. According to the researcher the nurturing of this particular thinking mode is beneficial to creative thinking, as it assists in developing analysis skills.

Question 6.5 expected responses regarding Social Sciences teachers asking questions based on responding with a new/original answer. Data obtained reveal that 27.1% of learners agree that these questions are almost always asked, with a further 33.8% stating that these questions are asked often. A further 31.3% indicate that asking questions based on coming up with a new/original answer is only sometimes asked, while 7.8% state that these questions are almost never asked. The responses for this question indicate a majority view (60.9%), implying that most of the Social Sciences teachers are apparently asking this type of question. Question 6.5 is linked with the **green hat** thinking (Birdi, 2005:102-111; De Bono, 1985:12) (*cf.* 3.8.15), which deals specifically with creativity and original thinking. In support of De Bono (1985:12) it seems as if many teachers promote green hat thinking which involves being able to see things from a variety of perspectives as well as being able to use many different strategies and approaches to solve problems (Torrance, 1977:16) (*cf.* 2.4.3.2). According to the researcher, this is a positive finding, which implies that the skill of synthesis (level 5 of Bloom's Taxonomy) is possibly being nurtured in the classroom.

Question 6.6 relates to Social Sciences teachers asking questions based on motivating their answers. Data obtained reveal that 45.8% of learners agree that these questions are almost always asked, with a further 26.6% stating that these questions are asked often. A further 22.6% indicate that asking questions based on motivating answers is only sometimes asked, while 5% state that these questions are almost never asked. A majority response is evident (72.5%), implying that Social Sciences teachers ask many questions in which learners must motivate their answers. Question 6.6 is linked with the

nurturing of **blue hat** thinking, which deals with motivations and summaries (Birdi, 2005:102-111; De Bono, 1985:12) (cf. 3.8.15). From the findings it is evident to the researcher, that many Social Sciences teachers apparently ask their learners to engage in thinking that requires synthesis and reflection. This is a very positive finding, as it implies that learners are given the opportunity to summarize their work and to motivate or elaborate on their thinking.

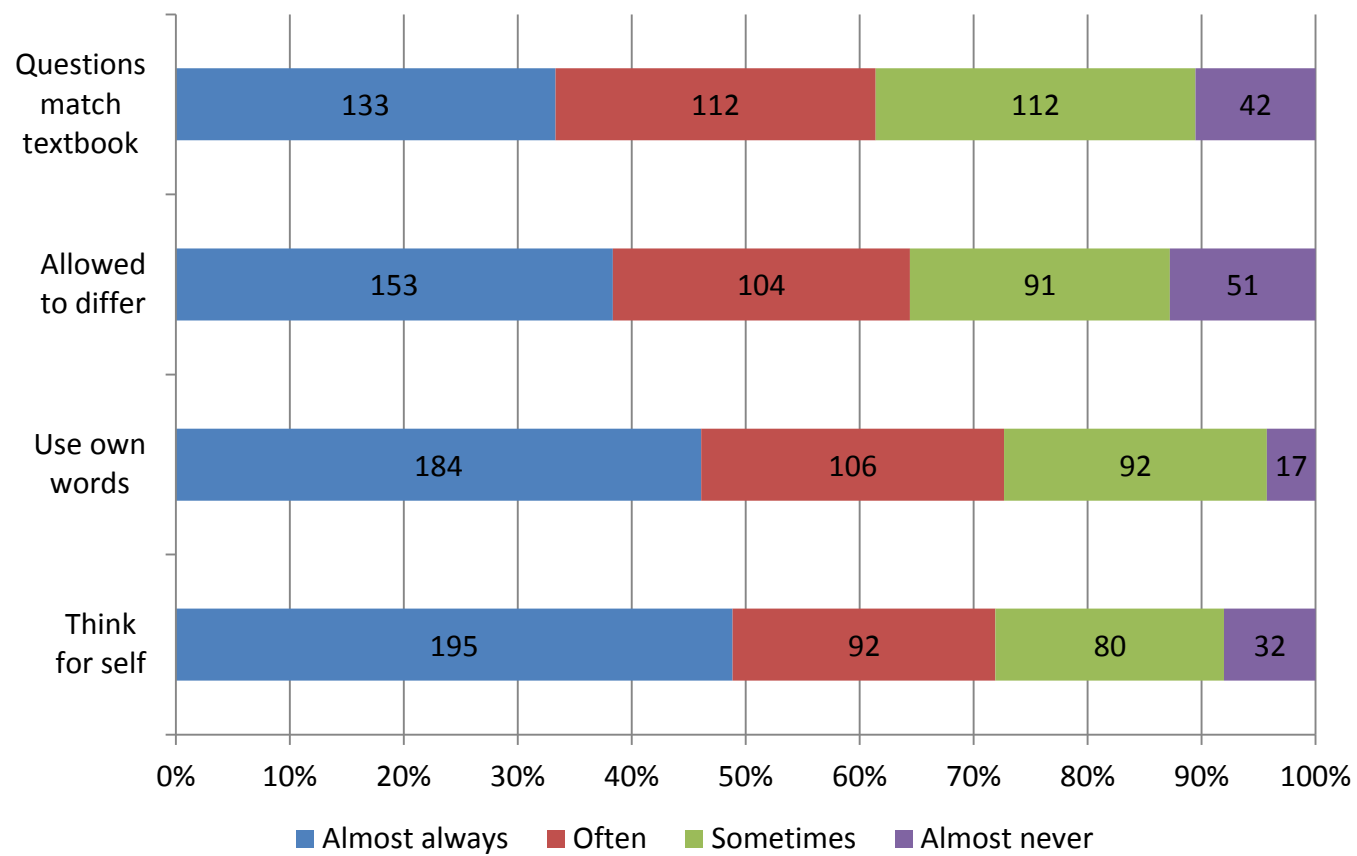
In summary, based on the responses, the researcher argues that flexible thinking appears to be nurtured by many of the Social Sciences teachers, as they do not curb learners' thinking, and encourage creative thought and action, as indicated by Costa (2009:21-23) and Torrance (1977:16) (cf. 2.4.3.2). In addition, many of the responses support the view of McKensie (2007:29) (cf. 3.8.15) that stimulating questions should be asked during teaching in order to develop interest and an inquiring attitude, which will motivate learners to become actively involved in lessons. Based on the responses, the researcher however concludes, that some teachers apparently do not provide opportunities for the nurturing of flexible thinking.

The next table, Table 5.13, reflects the data obtained for section E of the questionnaire, which relates to the nurturing of **original thinking**.

Regarding Section E, which focused on creative originality, the ideal responses according to the researcher would be if the learners are almost always allowed to think for themselves, to answer in their own words and to differ in their opinions. In response to the last question, the researcher expected that the teachers would almost never expect their learners to provide answers that correspond with the textbook.

Table 5.13: Learner responses: Creative thinking: Section E: Originality

Question	Almost always		Often		Sometimes		Almost never		Missing	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1. My teacher lets me think for myself.	195	48.9	92	23.1	80	20.0	32	8.0	0	0.0
2. I am allowed to phrase answers in my own words.	184	46.1	106	25.8	92	23.1	17	4.2	0	0.0
3. I am allowed to differ in my opinion from others in the class.	153	38.3	104	26.1	91	22.8	51	12.8	0	0.0
4. My teacher expects us to provide answers to questions that correspond exactly with the textbook.	133	33.3	112	28.1	112	28.1	42	10.5	0	0.0



Question 1 focused on Social Sciences teachers allowing their learners to think for themselves. From the results obtained, 48.9% of learner responses indicate that teachers almost always allow their learners to think for themselves, and a further 23.1% often allow them to think for themselves. This response is therefore viewed by the researcher as a favourable majority (72%). However, 20.0% of the learners note that they are only sometimes allowed to think for themselves and the disconcerting aspect is that 8% of the learners state that they are almost never allowed to think for themselves. In interpreting question 1 of this section, it would appear as if teachers are supportive of learner originality, by allowing them to think for themselves. When learners think for themselves, they are free to synthesize information learnt in their own unique way. It would also appear that the classroom climate of the teachers is very open, allowing intellectual freedom to develop something new, which supports the view of Liu (2000:261), MacFarlane (2007:18) and Runco and Charles (1993:537) (*cf.* 2.4). The aforementioned authors assert that originality refers to something striking, original or unusual. The responses also support the view of Torrance (1977:17) (*cf.* 2.4.3.2) who defines originality as any idea that is generated that is unusual, different or unique. In support of Hennessey (2004:35) and McCoy and Evans (2002:409) (*cf.* 2.6.7), the Social Sciences teachers seem to create classroom climates which appear to be most desirable is one which fosters psychological safety and intellectual freedom within a structure where individuals respect one another as persons of unconditional worth. According to the researcher, many of the Social Sciences classrooms that took part in the research appear not to be authoritarian and extremely teacher-centred, which could stifle intellectual freedom (Arends, 2004:70-80; Burden & Byrd, 2003:120; Gunter *et al.*, 2010:70-80) (*cf.* 3.3).

Question 2 wanted to establish whether on Social Sciences teachers allow learners to phrase answers in their own words. The data indicate that 46.1% of learners agree that their teachers allow them to answer in their own words almost always, with a further 25.8% stating that it is allowed often. This indicates a majority view (71.9%). However, 23.1% of learners indicate that they are only sometimes allowed to phrase answers in their own words, with a

further 4.2% stating that they are almost never allowed to do this. Regarding the interpretation of question 2 of the section, it would appear as if teachers are supportive of learner originality, by allowing them to answer in their own words. According to the researcher, when learners answer in their own words, they are free to synthesize information learnt in their own unique way. It would appear that the classroom climate of the teachers is very open and allows intellectual freedom for creative thinking to develop (Runco, 2003:318) (*cf.* 2.4.3.2).

Question 3 dealt with the Social Sciences teacher allowing learners to differ from others in their opinions. Data obtained show that 38.3% of the learners agree that their teachers allow them to almost always differ in their opinion with the rest of the class, with a further 26.1% stating that it is allowed often. Once again, this response is indicative of a majority view (64.4%). A further 22.8% of learners state that they are only sometimes allowed to differ in opinion, with 12.8% stating that they are almost never allowed to differ in opinion. The responses indicate that over a third of the learners (35.6%) agree that they are not allowed to differ in their opinions. Regarding the interpretation for question 3, which relates to learners being allowed to differ in their opinions, it is evident that originality is being stimulated, as it would appear that the classroom climate adopted by the teachers supports differences in opinion that lead to more original products (Kurtzberg, 2005:53) (*cf.* 2.4.4.4). In support of McCoy and Evans (2002:413) (*cf.* 2.6.7), the researcher argues that many of the teachers seem to move towards making their classrooms more thoughtful places, by valuing originality and authenticity, and by using differences of opinion as teaching situations which invite thoughtful analyses.

Question 4 related to teachers expecting learners to provide answers to questions that correspond exactly with the textbook. Data reveal that 33.3% of learners are in agreement that this practice almost always occurs, with a further 28.1% of learners stating that it occurs often. This is the first negative response in this section, and it represents a majority view (61.4%). A further 28.1% of learners state that their answers must only sometimes correspond exactly with the textbook, while 10.5% indicate that their answers must almost

never correspond with the textbook. Regarding the interpretation of question 4, which relates to learners being expected to answer questions that correspond exactly with the textbook, literature indicates that textbooks will enable learners to find anything in it that will make the learning content more accessible and comprehensible to them (Killen, 2007:78) (*cf.* 3.9.4). This would imply that textbooks are there to stimulate learners' thinking, as it makes content comprehensible. The researcher argues that teachers need to be aware of the fact that despite the textbook containing resources and containing stimulating activities, the responsibility is with the teacher to make the work accessible to learners and to guide them through the various activities. Only this way can a textbook assist in the development of thinking skills (De Beer, 2010:130; Killen, 2007:79) (*cf.* 3.9.4). According to the researcher, when making use of textbooks, teachers must guide learners to understand the content and not merely memorize it. When teachers expect learners to answer in exactly the same way as the textbook, it does nothing but stimulate the most basic thinking skills, that of rote learning and memorization (Killen, 2007:79) (*cf.* 3.9.4). The researcher argues that an overemphasis on the use of textbooks can be linked to a specific teaching method, namely direct teaching, which involves memorization and repetition of facts (Arends, 2004:70-80; Burden & Byrd, 2003:120; Schraw & Olafson, 2003:180; Tournaki, 2003:450) (*cf.* 3.3, 3.8.2). As the majority of learners agreed that they need to answer in exactly the same way as the textbook, it would seem that their originality is not being developed when they need to answer questions, as the answers are based merely on memory recall of information.

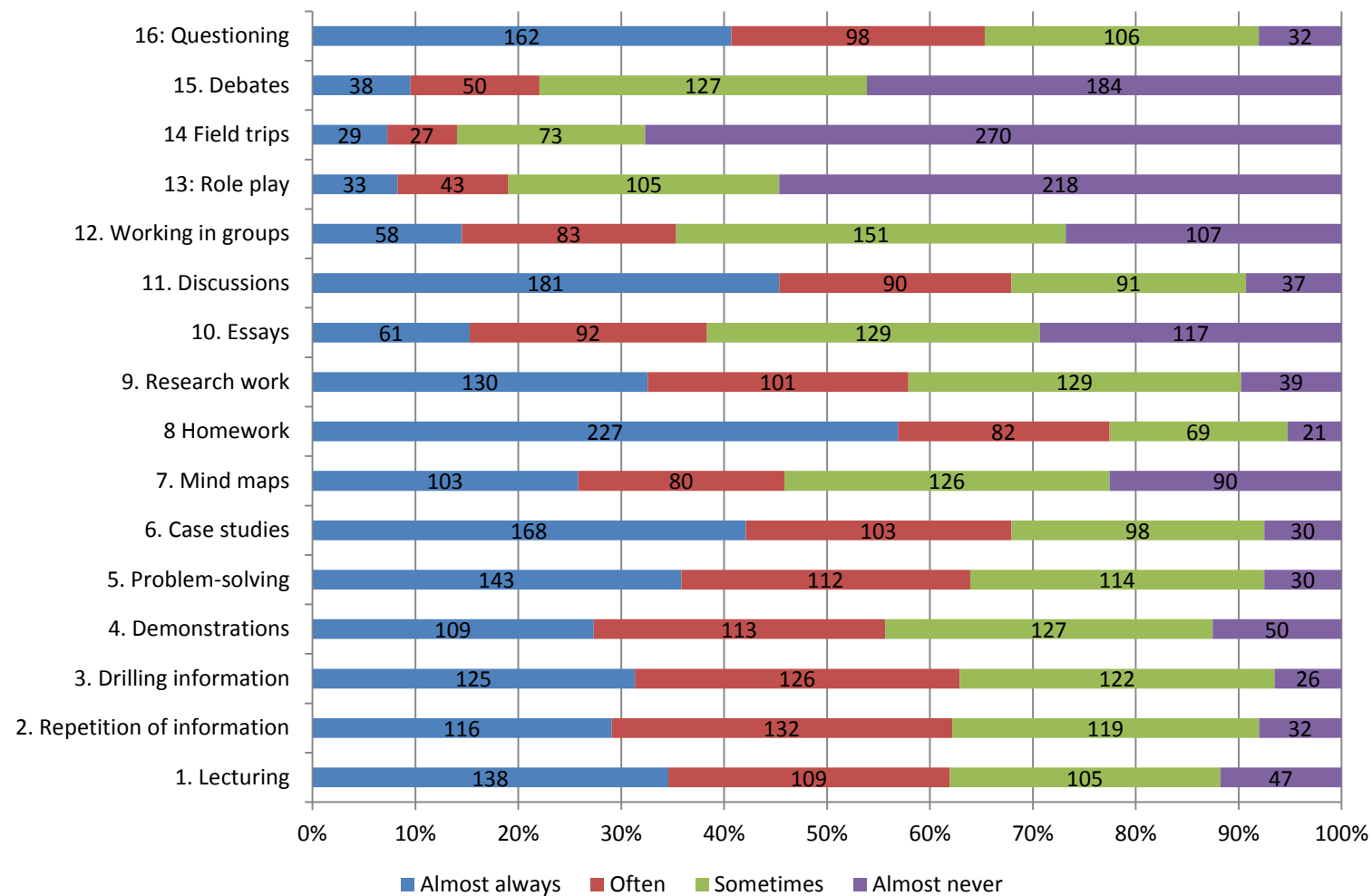
To conclude this section's analysis and interpretation, it would appear that teachers are trying to promote originality in their Grade 9 Social Sciences classrooms, by allowing the generation of ideas that is unusual, different or unique (Torrance, 1977:17) (*cf.* 2.4.3.2). The only cause for concern, according to the researcher, is the data obtained for the last question, according to which it appears that the nurturing of originality does not receive a lot of attention.

The next table, Table 5.14, reports on the data related to the **teaching strategies** that the Grade 9 Social Sciences teachers use.

According to the researcher, the ideal responses to this section regarding teaching strategies would be if teachers at least often make use of a wide variety of the strategies. Another ideal response would be if teachers do not rely so much on direct instruction (lecturing, repetition, drill-and-practice and demonstrations), but rather on indirect, independent, interactive and experiential teaching methods and strategies.

Table 5.14: Learner responses: Section F: Teaching strategies

Question	Almost always		Often		Sometimes		Almost never		Missing	
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%
1. Lecturing	138	34.6	109	27.3	105	26.3	47	11.8	0	0.0
2. Repetition of information	116	29.1	132	33.1	119	29.8	32	8.0	0	0.0
3. Drilling information	125	31.3	126	31.6	122	30.6	26	6.5	0	0.0
4. Demonstrations	109	27.3	113	28.3	127	31.9	50	12.5	0	0.0
5. Problem solving	143	35.8	112	28.1	114	28.6	30	7.5	0	0.0
6. Case studies	168	42.1	103	25.8	98	24.6	30	7.5	0	0.0
7. Mind maps	103	25.7	80	20.1	126	31.6	90	22.6	0	0.0
8 Homework	227	56.8	82	20.6	69	17.3	21	5.3	0	0.0
9. Research work	130	32.6	101	25.3	129	32.3	39	9.8	0	0.0
10. Essays	61	15.3	92	23.1	129	32.3	117	29.3	0	0.0
11. Discussions	181	45.4	90	22.6	91	22.7	37	9.3	0	0.0
12. Working in groups	58	14.5	83	20.8	151	37.9	107	26.8	0	0.0
13: Role play	33	8.3	43	10.8	105	26.3	218	54.6	0	0.0
14 Field trips	29	7.3	27	6.8	73	18.3	270	67.6	0	0.0
15. Debates	38	9.5	50	12.5	127	31.9	184	46.1	0	0.0
16: Questioning	162	40.5	98	24.6	106	26.6	32	8.0	1	0.3



Question 1 of this section relates to teachers making use of lectures in the Social Sciences classroom. Data indicate that 34.6% of learners state that their teacher almost always makes use of lectures in the class, with a further 27.3% of learners stating that lectures are used by the teacher often. This is regarded as a negative result, indicating that teachers prefer the use of the lecture teaching strategy (61.9%). However, 26.3% of learners also state that their Social Sciences teacher only sometimes uses lecturing; with a further 11.8% indicating lecturing is almost never used. The implication is that many of the teachers are mainly using teacher-centred instruction, which, according to the researcher and the literature does not nurture creative thinking, as learners are passive recipients of learning content (Gunter *et al.*, 2010:70-80) (*cf.* 3.3), and the teacher delivers content in a structured format (Killen, 2007:2) (*cf.* 3.8.1). There are numerous advantages when using this teaching strategy, namely that it maintains discipline and keeps the learners' attention on the teacher (Bligh, 2000:4) (*cf.* 3.8.1). However, according to the researcher, the lecture strategy can nurture creative thinking, only to a limited extent, namely if the lecture is thought provoking and allows learners to think on higher cognitive levels. This particular strategy cannot be the only strategy in use by a Social Sciences teacher, as this strategy only works effectively in teaching basic knowledge and skills, and needs to be supplemented with other strategies if creative thinking is to be nurtured (Killen, 2007:2) (*cf.* 3.8.1).

Question 2 aimed to determine if teachers make use of repetitive instruction in the Social Sciences classroom. Data obtained indicate that 29.1% of learners agree that their teacher almost always makes use of repetition, with a further 33.1% of learners indicating repetition being used often. The researcher regards this response as negative, as it appears that this teaching strategy is being used too often (62.2%) by most of the teachers, which could hamper the nurturing of creative thinking and mainly promoting the acquisition of knowledge or skills that require repetitive practice (Tournaki, 2003:450) (*cf.* 3.8.2). However, 29.8% of learners indicated that their Social Sciences teacher only sometimes makes use of repetitive instruction, with a further 8% stating that this method is almost never used. There are numerous advantages when using this teaching strategy, namely that it *inter alia* helps

learners master information at their own pace (Tournaki, 2003:451) (*cf.* 3.8.2), but this strategy does not nurture creative thinking at all, as the cognitive skill used in this strategy is a lower-order skill which relates to knowledge recall (Bloom, 1956:9) (*cf.* 2.3). This strategy can be used to ensure that base concepts are remembered, but the researcher argues that it must be supplemented with other more thinking-intensive strategies, such as debates or case studies to nurture deeper and wider thinking (Freiberg, 2002:56; Killen, 2007:57; Loyens *et al.*, 2008:44; McKee *et al.*, 2007:395; Monyai, 2006:118-120; Novak & Cañas, 2006:56; Warburton, 2006:36) (*cf.* 3.8.3-3.8.6, 3.8.8, 3.8.9, 3.8.13).

Question 3 established the use of drill-and-practice in the Social Sciences classroom. Data obtained indicate that 31.3% of learners agree that their teachers almost always use drill-and-practice, with a further 31.6% indicating that drill-and-practice is used often. This is once again regarded by the researcher as a negative result (62.9%), indicating that teachers use drill-and-practice throughout their teaching of Social Sciences. However, 30.6% of learners indicate that their Social Sciences teacher only sometimes makes use of drill-and-practice, with a further 6.5% indicating it is almost never used. In support of the literature, the researcher argues that in order to be meaningful to learners, the skills built through drill-and-practice should become the building blocks for more meaningful learning (Tournaki, 2003:450) (*cf.* 3.8.2). There are numerous advantages when using this teaching strategy, namely that it is *inter alia* used as a reinforcement tool (Tournaki, 2003:450) (*cf.* 3.8.2), but this strategy does not nurture creative thinking at all, as the cognitive skill being nurtured is lower-order, and merely relates to knowledge recall (Bloom, 1956:9) (*cf.* 2.3). According to the researcher, this strategy by itself will not nurture creative thinking, but needs to be supplemented with other strategies that build upon the basic knowledge that is being recalled.

Question 4 focused on teachers making use of demonstrations in the Social Sciences classroom. Data obtained indicate that 27.3% of learners agree that their teachers almost always use demonstrations, with a further 28.3% indicating that demonstrations are often used. The responses are therefore interpreted as being average (55.6%), indicating that Social Sciences

teachers could make more use of demonstrations. Only 31.9% of learners indicate that their teachers sometimes make use of demonstrations, with a further 12.5% stating that it is almost never done. In teaching through demonstration, learners are potentially set up to conceptualize class material more effectively (Bruce *et al.*, 2009; Monyai, 2006:110-112) (*cf.* 3.3.3), which according to the researcher holds advantages for nurturing creative elaborative thinking. There are numerous advantages when using this teaching strategy, namely that it utilizes several senses; learners can see, hear, and possibly experience an actual event (McKee *et al.*, 2007:395; Monyai, 2006:110-112) (*cf.* 3.8.3). This method can nurture creative thinking, as learners may begin to think on the application level of Bloom's Taxonomy, as they will need to apply what the teacher is explaining during the demonstration (Bloom, 1956:9) (*cf.* 2.3). Application is a higher-order thinking skill and a foundational skill for synthetic thinking, which is regarded as important for creative thinking (Bloom, 1956:9) (*cf.* 2.3).

Question 5 expected learners to respond to the use of problem solving in the Social Sciences classroom. Data obtained indicate that 35.8% of learners agree that their teachers almost always use problem solving, with a further 28.1% indicating that problem solving is used often. The researcher is therefore of the opinion that the responses could be regarded as positive (63.9%), with the majority of teachers apparently utilizing problem solving in Social Sciences. However, 28.6% of learners indicate that their teachers only sometimes make use of problem solving, with a further 7.5% indicating it is almost never used. This response indicates that some teachers are apparently not aware of the advantages of using problem solving during teaching. Problem solving is the ability to identify and solve problems by applying appropriate reflective and creative skills systematically in order to find a solution (Loyens *et al.*, 2008:411; Monyai, 2006:114-118; Morrison *et al.*, 2011:312) (*cf.* 3.4.3, 3.6.3). There are numerous advantages when using this teaching strategy, namely that learners participate actively in what is being taught (Loyens *et al.*, 2008:414; Monyai, 2006:114-118; Morrison *et al.*, 2011:312) (*cf.* 3.8.4), which according to the researcher stimulates creative thinking, as learners need to create solutions to problems by generate new

ideas. This process of idea generation is linked with the creative thinking skill of fluency (Torrance, 1977:15) (*cf.* 2.4.3.2), which many of the Social Sciences teachers appear to uphold in order for learners to gain new knowledge on their own and to feel responsible for their own learning (Van Rooy, 2006:105) (*cf.* 3.6.3). This question links with question 2.3 in Table 5.11, where participants were asked if problem solving is utilized in the activities given to them. The researcher finds it strange, that the responses to question 2.3 revealed the opposite, namely that problem solving appears to be used only seldom. The researcher aims to find an answer to this discrepancy during the interviews with the teachers (*cf.* 5.7.6).

Question 6 requested learners to evaluate the teachers' use of case studies in the Social Sciences classroom. Data obtained indicate that 42.1% of learners agree that their teachers almost always utilize case studies, with a further 25.8% indicating that case studies are used often. Once again, this is seen as a favourable result (67.9%) which indicates that teachers appear to use case studies in their teaching of Social Sciences. However, 24.6% of learners also indicated that case studies are only used sometimes, with a further 7.5% indicating it is almost never used. In support of the literature, it seems as if many teachers nurture creative thinking through the use of case studies, which involve interactive, learner-centred exploration of realistic and specific situations, that challenge learners to consider problem solving from a perspective which requires analysis, that has no single right answer (Monyai, 2006:118-120; Shepard & Greene, 2003:22) (*cf.* 3.8.5). There are numerous advantages for nurturing creative thinking when using this teaching strategy, namely that learners acquire substantive knowledge and develop analytic, collaborative and communication skills (Monyai, 2006:118-120; Yin, 2009:37) (*cf.* 3.8.5), which according to the researcher contribute to the nurturing of fluency, originality, flexibility and elaboration. In addition, according to the researcher, the case study strategy can indeed help nurture creative thinking, as learners need to scrutinize and analyse information from the case study and then synthesize it into their own coherent presentation.

Question 7 determined perceptions in relation to teachers making use of mind maps in the Social Sciences classroom. The data indicate that 31.6% of

learners agree that their teachers utilize mind maps only sometimes, with a further 22.6% stating that mind maps are almost never used. The responses for this particular question are seen as being average, with the majority view being negative, as mind maps, according to the researcher should be utilized more frequently (54.2%). This indicates that teachers need to make more use of mind maps in their teaching of Social Sciences. However, 25.7% of learners indicated that mind maps are almost always used, with a further 20.1% stating that they are used often. The implication of the responses could point to the fact that many learners are exposed on a frequent basis to a strategy where they have to summarize content by making use of their own individual creative expression (Novak& Cañas, 2006:56; Torrance, 1977:17) (*cf.* 2.4.3.2, 3.8.6).

Question 8 deals with the utilization of homework in the Social Sciences classroom. The data for this question indicates that 56.8% of learners agree that homework is almost always given, with a further 20.6% indicating homework is often given to learners. This is regarded as a positive result, as the responses above, when added up, calculate to 77.4%. This response, according to the researcher could imply that Social Sciences teachers are continually issuing homework to their learners. A further 17.3% of learners indicated that homework is only sometimes given, while 5.3% stated that it is almost never given. The majority of the responses imply that learners are being exposed to independent learning on a regular basis, which is regarded as important for nurturing creative thinking (Bennett & Kalish, 2006:13) (*cf.* 3.8.7).According to the researcher, it is important that when giving homework, to set homework questions and tasks that will stimulate learners' creative thinking. Examples of such activities are case studies (Yin, 2009:37) (*cf.* 3.4.1, 3.8.5), essays (Warburton, 2006:25) (*cf.* 3.5.2, 3.8.3) and research projects (Freiberg, 2002:56) (*cf.* 3.5.2, 3.8.8), as these activities develop analytic skills, the locating and organizing of information and delving deeper into subject content. It is clear to the researcher that based on the aforementioned argument, that fluency, originality, flexibility and elaboration will be nurtured when utilising the mentioned activities.

Question 9 paid particular attention to the use of research projects in the teaching of Social Sciences. The responses from the data indicate that 32.6% of learners agree that research projects are almost always used, with a further 25.3% indicating that research projects are used often. These responses are seen as average (57.9%), leaning toward a more positive result. There is, however, room for improvement, as Social Sciences teachers could make use of research projects more often in their teaching. A number of learners, 32.3%, indicate that research projects are only sometimes used, with a further 9.8% stating that they are almost never used. The implication therefore is that learners are not being exposed to research frequently, which can hamper their creative thinking in terms of developing and extending their own repertoire of skills required for analysing and recording information, sequencing and organizing ideas, and using language to inform others (Freiberg, 2002:56) (*cf.* 3.5.3).

Question 10 of this section focuses on Social Sciences teachers making use of essay writing in their teaching. The data obtained indicate that 32.3% of learners agree that essay writing is only sometimes used, with a further 29.3% stating that essay writing is almost never used. These responses, according to the researcher, indicate a negative result (61.6%) when it comes to using essays in the Social Sciences classroom, as it is a majority view. However, 23.1% of learners indicated that essays are used often, with a further 15.3% stating that essays are almost always used. The implication of the above-mentioned data is that some teachers could make more use of this strategy. Essays are defined as pieces of writing which are often written from an author's personal, unique point (Warburton, 2006:25) (*cf.* 3.5.3). There are numerous advantages when using this teaching strategy, namely that it stimulates learners' minds by assembling an argument and it encourages learners to think and read widely and deeply (Warburton, 2006:36) (*cf.* 3.8.9), which is important for the nurturing of creative thinking. According to the researcher, the use of essay writing in the Social Sciences classroom has the potential to nurture creative thinking, as essay writing involves the creation of original ideas, elaboration on ideas and fluency of ideas as identified by Torrance (1977:17) (*cf.* 2.4.3.2).

Question 11 addressed the use of discussions as a teaching strategy in the Social Sciences classroom. Data indicate that 45.4% of learners note that discussions are almost always used in class, with a further 22.6% indicating that discussions occur often. The responses for this question indicate a positive result (68%), implying that Social Sciences teachers are apparently having many discussions when teaching the subject. Only 22.7% of learners indicate that discussions are only sometimes used, with a further 9.3% stating that discussions almost never occur. Discussions are defined as an oral exploration of a topic, object, concept or experience (Gunter *et al.*, 2010:190-191) (*cf.* 3.6.3), which according to the researcher provide learners with opportunities to generate and share their own original questions and ideas in small and whole class settings. In line with the literature, many of the teachers seem to allow learners to get involved in discussions where they can generate new ideas and view issues from different points of view (Gunter *et al.*, 2010:190-191; Hennessey, 2004:35; Sullivan & Harper, 2009:1-20) (*cf.* 2.6.7, 3.8.10), that promotes the nurturing of creative thinking.

Question 12 paid particular attention to the use of group work in the teaching of Social Sciences. The responses to the data indicate that 37.9% of learners agree that group work is only sometimes used in class, with a further 26.8% stating that group work is almost never used. The responses from this question indicate a negative result (64.7%), implying that Social Sciences teachers are seemingly not making sufficient use of group activities in their teaching. A few learners, 20.8%, indicated that group work is used often, with a further 14.5% stating that group work is almost always used. The implication of this response, according to the researcher, is that learners are being deprived of interactive learning, which can lead to nurturing creative thinking. Using cooperative group work changes the teacher's role from giving information to facilitating learners' learning (Chiu, 2004:372; Monyai, 2006:124-129) (*cf.* 3.6.3). Based on the responses, it appears that many teachers do not acknowledge the advantages of using group work for nurturing creative thinking. Group work encourages learners to verbalize their own ideas, and the interaction that occurs during cooperative group work helps to motivate learners and stimulate their thinking (Killen, 2007:82) (*cf.*

3.8.11). Kurtzberg (2005:53) (*cf.* 2.4.4.6) notes that there will be an increased likelihood of novel ideas generated, based on the associations group members will have derived from the thoughts and ideas of others. Based on the aforementioned advantages, cooperative group work can, according to the researcher, nurture both fluent and original thinking, which are both elements of creative thinking, as identified by Torrance (1977:17) (*cf.* 2.4.3.2).

Question 13 focuses on the Social Sciences teachers' use of role-play in the classroom. The data obtained indicate that 54.6% of learners agree that role-play as a teaching strategy is almost never used, with a further 26.3% indicating role-play is only used sometimes. The researcher regards the responses as being extremely negative (80.9%), therefore implying that teachers probably do not wish to make use of, or do not know how to implement role-play in the Social Sciences classroom. Only 10.8% of learners indicated that role-play is used often and 8.3% state that it is almost always used. The implication here is that learners are not given the opportunity to express their original thinking through role-play. Role-playing is important for nurturing creative thinking, as it allows learners to take risk-free positions by acting out characters in hypothetical situations (Fogg, 2001:12; Monyai, 2006:122-124) (*cf.* 3.7.3), can help them understand a range of concerns, values, and positions held by other people, and enable them to see a problem from another perspective (Fogg, 2001:13; Monyai, 2006:122-124) (*cf.* 3.7.3). Role-play as a teaching strategy can lead to greater creative thinking, with specific improvements relating to learner originality, as learners act out their roles (Torrance, 1977:17) (*cf.* 2.4.3.2).

Question 14 deals with the Social Sciences teacher making use of field trips. Data obtained indicate that 67.9% of learners agree that they almost never go on field trips, with a further 18.3% stating that they only sometimes go on field trips. The responses to this particular question represent the most negative result for this section, as an overwhelming majority (86%) indicate the under-use of field trips. Only 7.3% of learners indicate that they almost always go on field trips, with a further 6.8% stating that they go on field trips often. The implication here is that learners are not experiencing their learning by visiting specific sites that relate to the work covered in class. Field trips offer an

opportunity for learners to get exposure to “real” people and events and the opportunity to make connections with others, thus providing elaboration on the learning that took place in class (Killen, 2007:50) (*cf.* 3.8.13). This strategy is a form of experiential learning, where learners put their knowledge into practice (Kim, 2005:8; Stavenga de Jong, 2006:169) (*cf.* 3.7), thus allowing for creative elaboration as identified by Torrance (1977:17) (*cf.* 2.4.3.2).

Question 15 in this section relates to Social Sciences teachers making use of debates in the classroom. Data obtained reveal that 46.1% of learners agree that debates are almost never used, with a further 31.9% indicating debates are only sometimes used. Adding these two responses, once again reveals a negative result (77.9%). Only 9.5% of learners indicated that debates are almost always used, with a further 12.5% indicating that debates are used often. This strategy is therefore considered to be under-used in the Social Sciences classroom. The implication from the above-mentioned data indicates that learners are not being exposed to debates in the classroom, which can hamper their creative thinking. The responses appear not to support the literature. According to the literature the use of debates is important to create opportunities for learners to defend and/or attack a given proposition by formulating their own original arguments (Darby, 2007:78-89; Machiette, 2009:12-15) (*cf.* 3.6.3). In addition, debates allow learners to think critically and strategically about both their own and their opponent’s position (Darby, 2007:78-89; Machiette, 2009:12-15) (*cf.* 3.6.3). According to the researcher, debates can nurture creative thinking among learners, as learners have to generate ideas quickly to rebuttal the opposing group. This can stimulate fluency quite effectively, as identified by Torrance (1977:17) (*cf.* 2.4.3.2).

Question 16 relates to Social Sciences teachers making use of questioning in the classroom. Data obtained indicate that 40.5% of learners agree that questioning is almost always used, with a further 24.6% indicating questioning is used often. When these two averages are added together, it reveals a positive result (65.1%). However, 26.6% of the learners indicated that questioning is only sometimes used, with a further 8% stating that questioning is almost never used. This question links with the responses to question 2 in Table 5.12, which asked learners to respond to the different kinds of questions

formulated by the teacher. The responses to question 2 revealed that although there are many teachers who do indeed ask questions that address the nurturing of various cognitive skills, there are teachers who do not effectively apply the use of questioning to stimulate all thinking modes. The aforementioned response support the response received to question 16. The response to question 16 could indicate that all the teachers are probably not aware of the numerous advantages when using questioning as a teaching strategy, namely that good questions develop interest and motivate learners to become actively involved in lessons, as well as develop critical thinking skills and inquiring attitudes (McKenzie, 2007:29) (*cf.* 3.8.15).

In summary, the data obtained revealed that Grade 9 Social Sciences teachers are utilizing direct instruction overwhelmingly, which is opposed to the ideal responses where it was hoped that a balanced teaching approach would be used. It is clear from the data that strategies like group work, field trips, essays and role-play, which are important for nurturing creative thinking (Freiberg, 2002:56; Killen, 2007:57; Loyens *et al.*, 2008:414; McKee *et al.*, 2007:395; Monyai, 2006:118-120; Novak & Cañas, 2006:56; Warburton, 2006:36) (*cf.* 3.8.3 – 3.8.6, 3.8.8, 3.8.9, 3.8.13), are extremely under-utilized.

The following section will discuss the different questionnaire sections by drawing a comparison between their mean scores to investigate which tenet of creative thinking appears to be nurtured the most, and which tenet appears to be nurtured the least.

5.5 DATA ANALYSIS AND INTERPRETATION: A COMPARISON BETWEEN THE LEARNER RESPONSES FOR THE VARIOUS QUESTIONNAIRE SECTIONS

In order to determine whether there were any statistically significant differences between the responses obtained for the various sections of the questionnaire, the learner responses were compared on the mean scores for each of the questionnaire sections. T-tests were utilized to determine whether differences that occurred were statistically significant (Pietersen & Maree, 2007b:230). *P*-values below 0.05 were regarded as statistically significant. To

determine the effect size of the statistically significant differences, Cohen's d was calculated and the effect sizes were interpreted as follows:

- 0.2: Small effect
- 0.5: Medium effect
- 0.8: Large effect (Pietersen & Maree, 2007b:230)

The findings for the following data sets are regarded as new findings, as there was no known literature pertaining to comparing the different facets of creative thinking and determining, which are the most nurtured.

Table 5.15 reports the means, standard deviations and the statistical significance of the differences between the responses obtained for the various questionnaire sections that each focused on a tenet of creative thinking.

Table 5.15: Comparison: Means for questionnaire sections

Section	N	$\bar{x}$	S
B: Elaboration	399	2.328	0.480
C: Fluency	399	2.123	0.508
D1: Flexibility: Teaching	399	2.128	0.604
D2: Flexibility: Questioning	399	2.170	0.574
E: Originality	399	2.000	0.635

Section	Mean Score ($\bar{x}$)
E: Originality	2.000
D2: Flexibility: Questioning	2.170
D1: Flexibility: Teaching	2.128
C: Fluency	2.123
B: Elaboration	2.328

The above table indicates one of the specific sections that stand out as having the highest mean scores compared to the rest of the sections, namely specifically section B, $\bar{x} = 2.328$. The researcher wishes to explain that mean

scores that are closer to 4 (almost never) indicate a negative result in terms of the tenet not being nurtured as frequently as it should be nurtured, while mean scores closer to 1 (almost always) indicate a positive result, that implies that the tenet appears to be nurtured frequently.

In section B, it was identified that teachers are not making sufficient use of teaching resources in the Social Sciences classroom (*cf.* 5.4). Not all the teachers seemingly use resources such as political cartoons, photographs and the overhead projector very frequently. This finding therefore reflects in the section's mean score, making it the highest ($\bar{x} = 2.328$) of all the sections.

The most favourable section is that of section E (*cf.* Table 5.13), which obtained a mean score of $\bar{x} = 2.000$. This section pertained to originality in the Social Sciences classroom. This result, according to the researcher is most definitely a good sign that learners are apparently at least often allowed to be original in their thinking in the classroom. Data revealed that learners are allowed to think for themselves and that they can differ in their opinions.

The other three sections, C, D1 and D2, all scored very similar means ($\bar{x} = 2.123$, $\bar{x} = 2.128$ and $\bar{x} = 2.170$), respectively. These means, when compared with the others, are closer to section E's mean score than the mean of section B. This implies that sections C, D1 and D2 all had more positive means, which could be interpreted as that creative fluency (section C) and flexibility (sections D1 and D2) are being nurtured much more than creative elaboration. This according to the researcher could be due to many economic factors, as creative elaboration involves the use of media that can be costly.

Interestingly, when focusing on the standard deviation data, it is noted that no section scored more than $S > 0.635$. The closer the standard deviation is to 0, the less deviation is therefore found in the responses. This indicates that there appeared not to be a lot of variation among the responses of the participants, which enhances the validity of the comparison of results.

In the following table, Table 5.16, the means of the different sections are compared and the statistical significant differences between the various sections are indicated. In line with the literature and the statistical consultation services, Cohen's d and effect size are only reported for statistical significant

differences. According to Leech, Barrett and Morgan (2005:59), if the difference between means was not statistically significant, it is best not to make any comment about which mean was higher because the difference could be due to chance. Likewise, if the difference was not significant, Leech *et al.* (2005:59) recommend that effect size is not discussed or interpreted.

Table 5.16: Comparison of means

Sections	N	$\bar{x}$	S	<i>t</i>	Sig <i>p</i>	Cohen's <i>d</i>	Effect size
B: Elaboration	399	2.328	0.480	7.755	0.000*	0.403	Small
C: Fluency	399	2.123	0.508				
B: Elaboration	399	2.328	0.480	5.927	0.000*	0.331	Small
D1: Flexibility (Teaching)	399	2.128	0.604				
B: Elaboration	399	2.328	0.480	5.342	0.000*	0.275	Small
D2: Flexibility (Questioning)	399	2.170	0.574				
B: Elaboration	399	2.328	0.480	8.960	0.000*	0.516	Medium
E: Originality	399	2.000	0.635				
C: Fluency	399	2.123	0.508	-0.139	0.890		
D1: Flexibility (Teaching)	399	2.128	0.604				
C: Fluency	399	2.123	0.508	-1.954	0.052		
D2: Flexibility (Questioning)	399	2.170	0.574				
C: Fluency	399	2.123	0.508	3.808	0.000*	0.193	None
E: Originality	399	2.000	0.635				
D1: Flexibility (Teaching)	399	2.128	0.604	-1.341	0.181		
D2: Flexibility (Questioning)	399	2.170	0.574				
D1: Flexibility (Teaching)	399	2.128	0.604	3.785	0.000*	0.201	Small
E: Originality	399	2.000	0.635				
D2: Flexibility (Questioning)	399	2.170	0.574	5.316	0.000*	0.267	Small
E: Originality	399	2.000	0.635				

Statistical significance: $p < 0.05$

The first two sections to be compared are **section B** (elaboration) and **section C** (fluency). The data obtained indicate that section B has a mean score of $\bar{x} = 2.328$, whereas section C has a score of $\bar{x} = 2.123$. The difference between the two means was statistically significant, $p < 0.05 = 0.000$, with a small effect size, $d = 0.403$. The difference could not be attributed to chance, and therefore indicate that creative fluency is being nurtured to a greater extent than creative elaboration.

The next two sections to be compared are **section B** (elaboration) and **section D1** (flexibility in teaching). The data obtained indicate that section B has a mean score of $\bar{x} = 2.328$, whereas section D1 has a score of $\bar{x} = 2.128$. The difference between the two means was statistically significant, $p < 0.05 = 0.000$, with a small effect size, $d = 0.331$. This difference could also not be attributed to chance, indicating that creative flexibility in teaching is being nurtured to a greater extent than creative elaboration.

The next two sections to be compared are **section B** (elaboration) and **section D2** (flexibility in questioning). The data obtained indicate that section B has a mean score of $\bar{x} = 2.328$, whereas section D2 has a score of $\bar{x} = 2.170$. Once again a statistical significant difference, $p < 0.05 = 0.000$, with a small effect size, $d = 0.275$, made the researcher aware that creative flexibility in questioning is being nurtured to a greater extent than creative elaboration.

A comparison between the mean scores of **section B** (elaboration) and **section E** (originality) revealed that section B has a mean score of $\bar{x} = 2.328$, whereas section E has a score of $\bar{x} = 2.000$. The difference between the two means indicated a statistical significant difference, $p < 0.05 = 0.000$, with a medium effect size, $d = 0.516$. Based on the data the researcher argues that creative originality is being nurtured to a greater extent than creative elaboration.

The comparison between **section C** (fluency) and **section D1** (flexibility in teaching) indicate a mean score of $\bar{x} = 2.123$ for Section C, whereas section D1 has a score of $\bar{x} = 2.128$. The statistical significant difference between the two mean scores $p > 0.05 = 0.890$, indicate that no statistical significant

difference exist between these two sections. The data therefore indicate that creative fluency and creative flexibility receive similar attention during teaching.

The next two sections to be compared are **section C** (fluency) and **section D2** (flexibility in questioning). The data obtained indicate that section C has a mean score of $\bar{x} = 2.123$, whereas section D2 has a score of $\bar{x} = 2.170$. No statistical significant difference is noted between the means, as $p > 0.05 = 0.052$. The data therefore indicate that creative fluency and creative flexibility in questioning are nurtured to the same extent.

A comparison between **section C** (fluency) and **section E** (originality) revealed that section C has a mean score of $\bar{x} = 2.123$, whereas section E has a score of $\bar{x} = 2.000$. A statistical significant difference between the two means scores is noted, $p < 0.05 = 0.000$, that has no effect size, $d = 0.193$. The data therefore indicate that creative originality is being nurtured to a greater extent than creative fluency.

The next two sections to be compared are **section D1** (flexibility in teaching) and **section D2** (flexibility in questioning). The data obtained indicate that section D1 has a mean score of $\bar{x} = 2.128$, whereas section D2 has a score of $\bar{x} = 2.170$. No statistical significant difference is noted between the two means, as $p > 0.05 = 0.181$. The data therefore indicate that creative flexibility in teaching and flexibility in questioning are nurtured to a similar extent.

A comparison between **section D1** (flexibility in teaching) and **section E** (originality) reveal a mean score of $\bar{x} = 2.128$ for Section D1, whereas section E has a score of $\bar{x} = 2.000$. A statistical significant difference, $p < 0.05 = 0.000$, with a small effect in practice, $d = 0.201$, is calculated for this difference between the means. The data therefore indicate that originality is being nurtured to a greater extent than flexibility in teaching.

The next two sections to be compared are **section D2** (flexibility in questioning) and **section E** (originality). The data obtained indicate that section D2 has a mean score of $\bar{x} = 2.170$, whereas section E has a score of $\bar{x} = 2.000$. The comparison between the means indicate a statistical significant difference, $p < 0.05 = 0.000$, with a small effect size, $d = 0.267$. The

researcher concludes that originality is being nurtured to a greater extent than creative flexibility in questioning.

To conclude, it is evident that the questionnaire section that has the most favourable responses would be section E that focused on creative **originality**, and that creative **elaboration** could be regarded as the area in need of more purposeful attention.

The following section will deal with the analysis and interpretation of the influence of the different biographic variables on the responses of the participants.

5.6 DATA ANALYSIS AND INTERPRETATION: ANALYSIS OF VARIANCE

5.6.1 Introduction

In order to determine whether there were any statistically significant differences between the learner responses obtained from the questionnaire for the Township, Private and Ex-Model C Schools, the responses were compared on the mean scores for each of the questionnaire sections. An ANOVA was utilized to determine whether differences that occurred between the different biographical variables were statistically significant (Pietersen & Maree, 2007b:230). To determine the effect size of the statistically significant difference, Cohen's *d* and effect sizes were calculated for statistical significant results.

Means for the various sections in the questionnaire were calculated according to the ordinal scales utilized for classifying the questionnaire responses (1: almost always, 2: often, 3: sometimes, 4: almost never). In interpreting the results, it is important to note that the lower the mean, the more favourable the response, as it is closer to 1, indicating that the nurturing of creative thinking takes place frequently.

5.6.2 Analysis of variance (ANOVA): Learner responses

The biographic variables were examined to determine their influence on the participants' perceptions regarding the nurturing of creative thinking. The following variables were considered:

- Language (English / Afrikaans)
- Gender (Male / Female)
- Type of school (Ex-Model C, Township, Private)
- Ethnic group (Black / White / Asian, Coloured and Indian combined together as they were too small to be considered in the statistical calculations)

In the table below, Table 5.17, the data for the biographic variable, language, in relation to the nurturing of creative thinking, is reported.

Table 5.17: ANOVA: Language and the nurturing of creative thinking

Section	Language	n	$\bar{x}$	S	F	p	Cohen's <i>d</i>	Effect size
Section F: Teaching strategies	1: Afr	66	2.641	0.452	18.43	0.00*	0.575	Medium
	2:Eng	333	2.366	0.478				

Statistical significance: $p < 0.05$

The above table indicates that a significant difference in responses between the English and Afrikaans participants was only detected in relation to Section F of the questionnaire, pertaining to teaching strategies. The value of this statistical significance was $p < 0.05 = 0.000$, with a medium effect size, $d = 0.575$. This result can be interpreted that the participants who received instruction in Afrikaans were more critical and less positive of their teachers' use of teaching strategies to nurture creative thinking than the participants who received instruction in English. The researcher is aware that the total number of responses need to be taken into account, as the English group ($n=333$) was far larger than the Afrikaans group ($n=66$). The smaller numbers could perhaps skew the data, as the Afrikaans group is underrepresented.

However, the standard deviations of both English and Afrikaans groups ($S = 0.478, S = 0.452$) were not large, indicating that there was not a lot of variation between the responses of the learners in both language groups.

In the next table, Table 5.18, the data for the biographic variable, gender, in relation to the nurturing of creative thinking, is reported.

Table 5.18: ANOVA: Gender and the nurturing of creative thinking

Section	Gender	n	$\bar{x}$	S	F	p	Cohen's d	Effect size
Section B: Elaboration	1: Male	185	2.270	0.479	5.025	0.026*	0.225	Small
	2: Gender	208	2.378	0.476				
Section F: Teaching strategies	1: Male	185	2.361	0.501	4.202	0.041*	0.201	Small
	2: Gender	208	2.462	0.467				

Statistical significance: $p < 0.05$

The table above indicates that statistical significant differences were detected between the male and female participants, specifically relating to sections B and F of the questionnaire.

The total number of male and female participants indicates that the two groups are very similar in size, with 185 males and 208 females. Moreover, in both sections, the standard deviations for both gender groups did not exceed 0.501, indicating that the learners did not deviate a lot in their responses, and that males and females had quite similar responses. This could be interpreted that they answered similarly because both genders were in the same classes.

The values for these significant differences were $p = 0.026$ for section B, and $p = 0.041$ for section F, with a small effect in practice, $d = 0.225$. Interestingly, no further significant differences were detected between the other questionnaire sections regarding the two gender groups, meaning that both males and females did not have a lot of variation in their responses.

The results for section B, pertaining to elaboration indicate a mean score of $\bar{x} = 2.270$ for the males and $\bar{x} = 2.378$ for the females, with a statistical significant difference of $p < 0.05 = 0.026$, with a small effect in practice, $d = 0.026$. The female participants had a more critical and negative view of their teachers' practices regarding elaboration in the Social Sciences classroom than the males.

Section F saw very similar results to that of section B. Section F, pertaining to teaching strategies, indicates a mean score of $\bar{x} = 2.361$ for the males and $\bar{x} = 2.462$ for the females, with a statistical significant difference of $p < 0.05 = 0.041$, and a small effect in practice, $d = 0.201$. Once again, the females were

more critical and not so positive concerning their teachers' teaching strategies being utilized within the Social Sciences classroom.

In the next table, Table 5.19, the data for the biographic variable, type of school, in relation to the nurturing of creative thinking, is reported.

Table 5.19: ANOVA: Type of school and the nurturing of creative thinking

Section	School type	n	$\bar{x}$	S	F	p
Section D: Flexibility	1: Ex MC	171	2.112	0.581	9.270	0.000*
	2: Township	149	2.262	0.623		
	3: Private	79	1.909	0.553		
Section E: Originality	1: Ex MC	171	1.978	0.612	7.754	0.001*
	2: Township	149	2.132	0.699		
	3: Private	79	1.797	0.495		

Statistical significance: $p < 0.05$

The above table indicates that specifically in sections D and E statistically significant differences were detected in the responses of learners from different types of schools. No statistically significant differences were detected between responses of the types of schools for the other sections. This implies that the learners from the different types of schools seemingly had similar perceptions regarding sections B, C and F.

The types of schools are given codes in the table, in which Ex MC stands for Ex-Model C Schools, T stands for Township Schools and P stands for Private Schools. The Ex-Model C Schools consisted of 171 learners, the Township Schools consisted of 149 learners and the Private Schools consisted of 79 learners who participated in the study. This indicates that the majority of learner responses were from the Ex-Model C Schools, with the Township School learners taking the second place. The Private School learners therefore make up the minority of the three groups. The researcher is aware that interpretations have to be made with caution, and are only tentative, as the learners from Ex-Model C Schools far outnumber those learners from the Private Schools.

The standard deviations reported in the table do indicate that there was a lot of variance among the responses.

The two sections in which significant differences were detected are section D, pertaining to flexibility, and section E, pertaining to originality. The analyses of each section will follow.

With regard to section D, the mean score of learners' responses from Township Schools was $\bar{x} = 2.262$, whereas learners' responses from Ex-Model C Schools had a mean score of $\bar{x} = 2.112$, and lastly learners' responses from Private Schools had a mean score of $\bar{x} = 1.909$. This clearly shows that participants from Private Schools apparently perceived the nurturing of flexibility more favourably in the Social Sciences class when compared to the other schools. Of the three groups, the learners from the Township Schools had the most negative perceptions regarding the nurturing of flexibility. A statistical significant difference, $p < 0.05 = 0.000$, was noted between the responses.

When comparing the mean scores of the different types of schools for section E, the learners' responses from Township Schools scored $\bar{x} = 2.132$; the learners' responses from Ex-Model C Schools scored $\bar{x} = 1.978$; and the learners' responses from Private Schools scored $\bar{x} = 1.797$. This indicates that participants from Private Schools seemingly perceived the nurturing of originality more favourably in the Social Sciences classroom when compared to the other schools. Of the three groups, the learners from the Township Schools had the most negative perceptions regarding the nurturing of originality. A statistical significant difference, $p < 0.05 = 0.00$, is noted between the various schools.

A pattern is noted in this analysis. For both sections D and E, the Private Schools had the most favourable perceptions, whereas the Township Schools had the most negative perceptions for both sections.

In contrast to the previous biographic variables, which only comprised two groups (male/female; Afrikaans/English), three groupings, were made for the type of school. This enabled the researcher to follow up the ANOVA with a *post hoc* test, Tukey's HSD (Honestly Significant Difference) tests, if

statistically significant differences were detected for the impact of the type of school on the perceptions regarding the nurturing of creative thinking. The purpose of the Tukey test was to investigate which of the school groupings displayed the statistical significant differences (McMillan & Schumacher, 2006:302).

In the next table, Table 5.20, the data for the biographic variable, type of school, in relation to the nurturing of creative thinking, is reported, as well as the results for the Tukey HSD test.

Table 5.20: ANOVA and Tukey HSD: Type of school and the nurturing of creative thinking

Section	School type	n	$\bar{x}$	S	F	p	Cohen's d	Effect size
ANOVA significance: p=0.000								
Section D: Flexibility	1: Ex MC	171	2.112	0.581	9.270	0.032*	0.325	Small
	3:Private	79	1.909	0.553				
ANOVA significance: p=0.001								
Section E: Originality	2:Township	149	2.132	0.699	7.754	0.000*	0.479	Small
	3:Private	79	1.797	0.495				

Statistical significance: $p < 0.05$

The above table indicates statistical significant differences in responses between two types of schools for sections D and E. The first section in which significant differences were detected is in section D, pertaining to flexibility. The two types of schools where differences were detected, were the Ex-Model C and Private Schools. The mean score for section D for the Ex-Model C Schools was $\bar{x} = 2.112$, and the score for the Private Schools was $\bar{x} = 1.909$. The Private School learners appeared to be more positive regarding their Social Sciences teacher's ability to nurture flexibility, as opposed to those of the Ex-Model C Schools. The standard deviations for each of the types of schools indicate that there was not a lot of variation among the responses of the two groups. The statistical significant difference between the two mean scores is $p < 0.05 = 0.032$, with a small effect size, $d = 0.325$. The data reveal that the Private School learners are more of the opinion that flexibility receives

attention on a frequent basis, as opposed to the Ex-Model C School participants.

The next section where significant differences were detected pertains to section E that focused on originality. The two types of schools in which differences were detected were the Township and Private Schools. The mean score for section E for the Township Schools was $\bar{x} = 2.132$, and the score for the Private Schools was $\bar{x} = 1.797$. The Private School learners appeared to be more positive regarding their Social Sciences teacher's efforts to frequently nurture originality, as opposed to those learners from the Township Schools. The standard deviations for each of the types of schools were indicative of not a lot of variation among the responses of the two groups of learners. The comparison of the means revealed a statistical significant difference, $p < 0.05 = 0.000$, with a small effect size, $d = 0.479$. The researcher concludes that learners from Private Schools are more of the opinion that originality is nurtured during their Social Science teaching than what the Township School learners are.

In the next table, Table 5.21, the data for the biographic variable, ethnic group, in relation to the nurturing of creative thinking, is reported.

Table 5.21: ANOVA: Ethnic group and the nurturing of creative thinking

Section	Ethnic group	n	$\bar{x}$	S	F	<i>p</i>
Section D: Flexibility	1: Black	246	2.154	0.622	3.603	0.028*
	2: White	79	2.086	0.519		
	3: Other	48	1.904	0.558		
Section F: Teaching strategies	1: Black	246	2.354	0.503	5.901	0.003*
	2: White	79	2.563	0.476		
	3: Other	48	2.463	0.368		

Statistical significance: $p < 0.05$

The above table represents the statistical significant differences for the comparisons between the various ethnic group means. The group entitled "other" refers to the grouping of a few Asian, Indian and Coloured learners.

The Black ethnic group had a total of 246 learners, the White group a total of 79 learners, and the Asian/Indian/Coloured group a total of 48 learners. The total number of learners equals to 373. The total number of participants must be taken into account when making interpretations, as the Black group is far larger than the Asian/Indian/Coloured and White groups, which could skew the data.

The table indicates that with regard to the sections on flexibility (D) and teaching strategies (F), respectively statistical significant differences were detected between the Black, White and Asian/Indian/Coloured responses, $p < 0.05 = 0.028$; $p < 0.05 = 0.003$. The table also indicates the standard deviations of responses between ethnic groups, which do not reveal a large variation.

For section D, the Black group had a mean score of $\bar{x} = 2.154$, the White group had $\bar{x} = 2.086$ and the Asian/Indian/Coloured group had $\bar{x} = 1.904$. From these means, it is clear that the perceptions of the Black group seemed to be the most negative for section D. The White group would then be regarded as being more positive in their perceptions than the Black group with regard to section D. The perceptions of the Asian/Indian/Coloured group could be regarded as the most positive result for section D.

The interpretation of the above differences could be linked to the literature, where it is indicated that creative thinking is viewed differently between cultures (ethnic groups) (Lubart, 1999:341; Rudowicz, 2003:278) (cf. 2.6.4). The different views on creative thinking could range from usefulness and originality in Western cultures, to a state of fulfilment and reinterpretation of tradition rather than breaking tradition in Eastern culture, and creative thinking as a group effort in African culture (Johnson, 2011:147; Nisbett *et al.*, 2001:291) (cf. 2.6.4).

As three ethnic groupings were available, the researcher could follow up the ANOVA with a *post hoc* test, Tukey's HSD test. The purpose of the Tukey test was to investigate which of the ethnic groupings displayed the statistical significant differences (McMillan & Schumacher, 2006:302).

In the next table, Table 5.22, the data for the biographic variable, ethnic group, in relation to the nurturing of creative thinking, is reported, as well as the Tukey HSD test.

Table 5.22: ANOVA and Tukey HSD: Ethnic group and the nurturing of creative thinking

Section	Ethnic group	n	$\bar{x}$	S	p	Cohen's d	Effect size
ANOVA significance: p=0.028*							
Section D: Flexibility	1: Black	246	2.154	0.622	0.022*	0.401	Small
	3:Other	48	1.904	0.558			
ANOVA significance: p=0.001							
Section F: Teaching strategies	1:Black	246	2.354	0.503	0.003*	0.415	Small
	2:White	79	2.563	0.476			

Statistical significance: $p < 0.05$

A statistical significant difference is noted between the means of Section D, between the Black participants ($\bar{x} = 2.154$) and the Asian/Indian/Coloured participants ($\bar{x} = 1.904$). The means scores indicate that the Black participants appeared to be more critical and negative in their assessment of the Social Sciences teacher's ability to nurture flexibility than their Asian/Indian/Coloured counterparts were. The standard deviation for section D for the Black and Asian/Indian/Coloured participants did not reveal large variation. The value for the statistical significant difference detected in this particular section was $p < 0.05 = 0.022$, with a small effect size, $d = 0.40$. The researcher concludes that the Black participants do experience the nurturing of flexibility less frequent than their Asian/Indian/Coloured counterparts do.

A statistical significant difference is also noted between the means of Section F, for the Black participants ($\bar{x} = 2.354$) and the White participants ($\bar{x} = 2.563$). White participants were apparently more critical and negative in their assessment of the Social Sciences teacher's teaching strategies for nurturing creative thinking than their African counterparts were. The standard deviations for Section F also did not indicate a lot of variation between the responses of the two groups. The statistical significant difference between the two mean scores, $p < 0.05 = 0.003$, with a small effect size, $d = 0.415$. The

researcher argues that the White participants experience the nurturing of creative thinking through a variety of teaching strategies less frequently than their Black counterparts do.

Following the above quantitative data analysis and interpretation, the next section will discuss the findings, analyses and interpretations of the qualitative section of the study.

5.7 DATA ANALYSIS AND INTERPRETATION: TEACHER INTERVIEW RESPONSES

This qualitative section of the research specifically dealt with the major negative results or problems obtained from the quantitative data analysis and interpretation. Teacher participants were asked questions, based on these findings, to clarify the teaching styles used to nurture creative thinking.

In this section, the main themes that were identified from the verbatim transcripts of the interview data will be highlighted. The discussion below is structured according to the topics in the interview protocol (*cf.* Appendix D).

In each of the following sections in which direct quotations were made from the participants, the exact row number as found in the verbatim transcripts (*cf.* Appendix E) is cross-referenced, to substantiate the interpretation made by the researcher, for example (*cf.* a.2), where a, indicates the participant, and 2, the row number in the verbatim transcript.

The following section will look at the particular question that was asked to the interview participants and the major themes that were identified (*cf.* Appendix F) will be discussed.

5.7.1 Question 1

How many years' experience do you have as a Social Sciences teacher?

The participants were asked this question because the researcher assumed that experience, or rather the lack thereof, could impact negatively on the nurturing of creative thinking in the Grade 9 Social Sciences classroom. In the interpretation of this question, the researcher concluded that any teacher who was teaching for less than five years would be considered inexperienced.

Therefore, any teacher who had more than five years' experience was considered a highly experienced teacher.

The following theme was identified from the responses to question 1.

5.7.1.1 Experience level of Grade 9 Social Sciences teachers

Inexperienced teachers

Three of the six Grade 9 Social Sciences teachers who were interviewed can be regarded as inexperienced teachers. This is evident in the statements of participant 4 who said "*I have been teaching now for 1 year*" (cf. d.3), participant 5 who said "*I have been teaching this learning area for a year now*" (cf. e.3) and lastly participant 6 who said "*3 years' experience now*" (cf. f.3).

The literature states that teacher experience is the number of years a teacher has taught. It is possible that learners who are performing badly are more likely to be at a disadvantage because they are more likely to be taught by less experienced teachers (Greenberg *et al.*, 2004) (cf. 3.1). This would imply that inexperienced teachers usually end up with classes that are struggling, and due to the lack of experience could end up with discipline problems when trying to teach. This could result in the inexperienced teacher only utilizing more formal, teacher-centred direct instruction methods, as it is easier to maintain discipline this way.

The researcher does not imply that all inexperienced teachers do not make use of diverse methods, but it has been found that those without experience tend to struggle when trying something new or different from their normal teaching methods (Goldhaber & Brewer, 2000:129-145) (cf. 3.1). This could ultimately have a negative impact on the nurturing of creative thinking, as other methods that could nurture this type of thinking might be ignored.

Experienced teachers

The remaining three Grade 9 Social Sciences teachers can be considered experienced teachers. This is validated by the statements of participant 1 who said "*I have been teaching it for 12 years*" (cf. a.3), participant 2 who said "*In Social Sciences, it has now been 5 years*" (cf. b.3) and lastly participant 3 who said "*Taught the subject for 20 years now*" (cf. c.3). Participant 3 also referred

to the old system of education in saying “*when the subjects were split between History and Geography*” (cf. c.4), which implies a lot of experience.

It is assumed that the experience level of a teacher would have an effect on whether or not creative thinking is being nurtured within the Grade 9 Social Sciences classroom. This experience level can also impact on the choice of teaching methods. The more experienced teachers, due to their many years of teaching, are seen as having higher skill sets than the inexperienced teachers, implying that those who have worked for many years are more capable of employing a variety of teaching methods effectively (Goldhaber & Brewer, 2000:129-145) (cf. 3.1).

Another area for concern according to the researcher regarding experienced teachers refers to their falling into a comfort zone concerning their teaching style and therefore opting not to change their methods. This might happen when teachers, who have been teaching for many years begin to fall into a routine with regard to the particular teaching methods that they prefer. They become accustomed to those methods that work for them and might become reluctant to employ variation that could disrupt the normal routine (Rice, 2003:15-18) (cf. 3.1). When analysing and interpreting the responses from the remaining questions, it will become evident whether or not these experienced teachers are indeed making use of a variety of teaching methods, or whether they are adhering to the old tried and tested methods.

5.7.2 Question 2

How would you define the term “creative thinking”?

This particular question was included as the researcher wished to gauge the understanding of teachers as to what creative thinking entails. The researcher argues, that it is important that teachers understand the different tenets of creative thinking, before it can be expected of them to nurture these tenets.

The following theme was identified from the responses to question 2.

5.7.2.1 Social Sciences teachers' partial understanding of creative thinking

All six of the interview participants defined creative thinking in terms of **originality**, as evidenced in the following statements: "*Thinking of original things*" (cf. a.6), "*This means being unique*" (cf. b.6), "*It means to think outside of the box*" (cf. c.8), "*It's all about thinking out of the box*" (cf. d.6), "*Thinking outside of the box*" (cf. e.8) and "*Bringing out the personality of each of my learners*" (cf. f.6).

Originality can be defined as any idea that is generated that is unusual, different or unique (Torrance, 1977:17) (cf. 2.4.3.2). One participant linked originality with uniqueness, clearly showing understanding. The term "*thinking outside the box*" is used by three of the participants. This phrase means to think unconventionally or from a new perspective, often referring to novel or original thinking (Runco, 2003:318) (cf. 2.4.3.2). Therefore these three participants definitely seem to understand the meaning of originality.

Three of the six participants also clearly linked creative thinking with **flexibility**, as evidenced in the following statements: "*Being able to have a broad mind-set*" (cf. a.7), "*Being different to the person next to you*" (cf. c.9) and "*To accept that everyone is different*" (cf. f.7).

Flexibility can be defined as the generation of ideas that are different from one another (Costa, 2009:21-23) (cf. 2.4.3.2) and that have multiple possibilities or entail realms of thinking (Torrance, 1977:16) (cf. 2.4.3.2). It therefore involves being able to see things from a variety of perspectives, as well as being able to use many different strategies and approaches. From the responses it is clear that the three participants probably understand what creative thinking implies in terms of flexibility, as the keyword "*different*" is mentioned. The other participant mentioned "*broad mind-set*", which, according to the researcher, links with the definition as well.

Another three of the six participants linked creative thinking with **fluency** or the ability to generate ideas. This is evidenced in the following statements: "*The skill to come up with new stuff*" (cf. b.7), "*Creating new things while thinking*" (cf. d.7) and "*Being able to come up with your own views*" (cf. e.9).

Creative fluency can be defined as the generation of a large number of different solutions to a problem and ideas concerning that problem (Torrance, 1977:15) (*cf.* 2.4.3.2). This is in contrast to the mere recalling and remembering of knowledge that is learned. From the responses, it is evident that the three participants apparently have a good understanding of creative fluency. Terms that link with the literature is "*come up with*" and "*creating new things while thinking*".

Interestingly enough, the researcher is of the opinion that in not one of the participants' definitions of creative thinking **elaborative thinking** is evident. Elaborative thinking is one of the four tenets of creative thinking and is of vital importance if creative thinking is to be nurtured. Elaborative thinking can be defined as the notion that ideas can be enhanced by providing elaborate detail (Torrance, 1977:16) (*cf.* 2.4.3.2). As this particular tenet was one of the least nurtured in the classroom according to data obtained in the quantitative section (*cf.* 5.5), it could be due to the teachers' lack of understanding that there is an underdevelopment of the said tenet. Learners need creative means of communicating their learning. Therefore, if this tenet is not fostered, it will lead to the underdevelopment of creative thinking (Niehuis *et al.*, 2001:118) (*cf.* 2.4.3.2). The teacher participants also appeared to have only a limited understanding of creative thinking because their responses did not focus on all the creativity tenets.

5.7.3 Question 3

According to your learners' responses, it was indicated that teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences (*cf.* Table 5.10, 5.4). Why do you think there is such an emphasis placed on these resources?

This question linked to the findings revealed in the quantitative study, which found that teachers were mainly relying on certain types of resources (*cf.* Table 5.10, 5.4).

The following theme was identified from the responses to question 3.

5.7.3.1 Various financial and logistical reasons for use of basic resources

Of the six participants involved, three mentioned that financial constraints force teachers to make use of the basic resources in the classroom. This is evident in the following statements: *“It has to do with funds, as this school has got very little resources.”* (cf. a.14), *“There aren’t finances for Social Sciences. We don’t even have textbooks. All we use is copied papers.”* (cf. d.15), *“Because they (schools) have them. Schools are limited to what you can afford.”* (cf. f.14).

Four of the interview participants also cited logistical reasons for their use of basic resources, that it is the easiest and quickest way to teach and that these resources are essential for teaching to take place. This is evident in the following statements: *“I think that these resources are very easy to use, so I make use of it a lot. All teachers must make use of a textbook, so I don’t think it’s wrong.”* (cf. b.12), *“I think it has to do with what Social Sciences teachers view as essential resources.”* (cf. c.20), *“We might have these other fancy resources, but we don’t have time to use them.”* (cf. d.14), *“I think the easiest way out is for teachers to just use the textbook.”* (cf. e.19).

The first issue of funding and financial constraints stems directly from the systemic issues relating to how schools are run and their financial status. It is clear from the literature that public schools, which are run by the government, are under resourced and lack sufficient finances to aid in the running of the schools (Taylor, 2006:1-9) (cf. 3.1). Schools can only afford the most basic of teaching/learning support materials such as the chalkboard and textbooks.

Literature also points out that the use of a textbook is more often than not the only aid readily available in the classroom, due to financial issues (Killen, 2007:78) (cf. 3.10.4). Furthermore, the use of the chalkboard is considered to be part of traditional teaching, but due to financial constraints, schools simply cannot afford to acquire more technologically advanced resources (Killen, 2007:78) (cf. 3.10.5). The poor financial status of schools therefore could seriously hamper the development of elaborative thinking in the Social Sciences classroom.

The sole use of the mentioned resources will not develop learners' elaborative thinking, as Torrance (1977:16) (*cf.* 2.4.3.2) states that ideas can be only be enhanced by providing elaborate detail. In this regard, Van Rooyen and Van der Merwe (2008:228-266) (*cf.* 3.9), argue that the use of multiple resources is required to nurture deeper understanding and enrich learning. This enrichment, according to the researcher, could point to the nurturing of elaborative thinking. De Beer (2010:128) (*cf.* 3.9) states that learners use different cognitive systems to process verbal and visual media, which is important for elaborative thinking. In line with the view of Killen (2007:82) (*cf.* 3.9.6), the researcher argues teachers should not solely rely on one resource, but rather use a more versatile approach towards a variety of resources.

5.7.4 Question 4

Why do you think the use of political cartoons and photographs is indicated as under-used in the Social Sciences classroom?

This question linked to the findings revealed in the quantitative study, which found that teachers were not making use of specific resources (*cf.* Table 5.10, 5.4).

The following themes were identified from the responses to question 4.

5.7.4.1 Financial and logistical reasons for underuse of resources

Five of the six interview participants cited logistical reasons for not using the other resources, especially when it comes to time, availability and effort, as well as financial constraints. This is evident in the following statements: *"I would like to use these things, but I can't copy pages for each learner. This school doesn't have enough money to buy paper for everyone."* (*cf.* b.19), *"There aren't too many (photographs) available. What I find I make use of it."* (*cf.* c.28), *"We also don't have many cartoons, there are here and there. Unless the department says we must use cartoons, I never use them."* (*cf.* d.24), *"If we could get more from the internet, I would use them more frequently."* (*cf.* e.27), *"It's again based on availability and affordability. There is value in using these things, but it comes at a cost."* (*cf.* f.22).

This particular theme links directly with the responses to the previous question, as financial constraints limit the schools and the teachers to

resources they can afford. It is clear from the literature that public schools, which are run by the government, are under resourced and lack sufficient finances to aid in the running of the schools (Taylor, 2006:1-9) (cf. 3.1). Schools can only afford the most basic teaching/learning support materials such as the chalkboard and textbook. This ultimately leaves the other resources that can be used in the Social Sciences classroom, such as political cartoons and photographs, probably being underused.

5.7.4.2 Particular resources create controversy in the classroom

Two of the six participants also stated that these particular resources can create controversy and debate in the classroom, which is why they do not use them. This is evident in the following statements: *“The cartoons always show something controversial. I do not want to discuss these issues in my class because it creates needless arguments. I prefer not to use these.”* (cf. c.25), *“It can bring up anger in discussions, so it’s difficult. Photos have to be used very diplomatically. I am scared to use them”* (cf. d.22).

The above statements indicate to the researcher a level of hesitancy when employing political cartoons and photographs in the Social Sciences classroom. Both participants cited the creation of controversy within the classroom as the major contributing factor as to why they do not use said resources. This fear of using the resources could maybe stem from cultural and historical issues relating to the topic or content being dealt with in the Social Sciences class.

An example of this controversial content could be the sections on Apartheid in this country’s history. It is obvious that this is a very sensitive subject for many South Africans, and it could indeed influence the way in which teachers handle the content. The reason for this under-use of the mentioned resources lies squarely on cultural and historical factors, according to Kurtzberg (2005:53) and Rudowicz(2003:273) (cf. 2.4.4, 2.6.4).

Despite the controversy that these resources create, they are extremely valuable to the development of elaborative and creative thinking, as defined by Torrance (1977:16) (cf. 2.4.3.2). The researcher argues that teachers need

to address controversial issues professionally and try their best not to attach personal feelings to their work when using these resources.

5.7.4.3 Incompetence in the use of particular resources

One of the six interview participants stated that the use of political cartoons and photographs requires effort in setting them up and that teachers do not know how to utilize them effectively. This is evident in participant 1's statement: *"Political cartoons require a lot of interpretation, things like bias and humour, are difficult for the learners. We as teachers find it difficult to explain how to do these things when looking at a cartoon"* (cf. a.20).

It is clear from the responses that political cartoons are not regarded as vivid primary sources that offer intriguing and entertaining insights into the public mood, the underlying assumptions of an age and attitudes toward key events of the times (Bickford, 2011:65-80; Shoob & Stout, 2008:88) (cf. 3.9.1). The researcher acknowledges that it takes a good deal of knowledge of the precise historical context to grasp such cartoons. It could be that teachers do not have a solid knowledge base to use cartoons effectively.

In this regard, literature agrees with the statement that political cartoons can be difficult to use, especially if the teacher does not know how to use or interpret them (Bickford, 2011:65-80; Shoob & Stout, 2008:88) (cf. 3.9.1).

5.7.5 Question 5

Learner responses indicated a heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information. Why is this the case?

This particular question was asked to participants, as the quantitative study revealed that teachers rely heavily on using direct instructional strategies (cf. Table 5.11, 5.4).

The following themes were identified from the responses to question 5.

5.7.5.1 Content-driven nature of the learning area promotes use of basic activities

The interview participants responded to this question by indicating that the subject Social Sciences is very content-driven, which ultimately requires the

testing of that content in a very basic way, and that more time is placed on simply teaching content, than making time and using effort for more challenging tasks. This is evident in the following responses: *“Well in any subject learners must know some information so we test them on that knowledge.”* (cf. a.29), *“Must remember certain events and dates, they must remember the formulas for calculating in map work. So yes, they must recall information a lot.”* (cf. b.29), *“I don’t make sole use of these techniques, as they don’t make the learners think too much. Maybe only on the first 2 levels of Bloom.”* (cf. c.33), *“Teachers just want to get through the work as quickly as possible, just to move on.”* (cf. e.39), *“Sometimes you sacrifice the little extra you could have done”* (cf. f.36).

The responses to this question show a clear link with the epistemological worldview of a realist. The realist worldview assumes that there is an objective body of knowledge that is best acquired through experts via transmission and reconstruction (Weinert & Helmke, 1995:135) (cf. 3.3.2). Experts agree upon this knowledge, which is relatively unchanging (Schraw & Olafson, 2003:180) (cf. 3.3.2). The researcher argues, that it is possible that the content-driven nature of the Social Sciences could influence the teaching approach of the teacher to be teacher-centred and based on transmission and reception with little learning activity and involvement that would nurture creative thinking (Burden & Byrd, 2003:120; Sing & Khine, 2008:287-289) (cf. 3.3). The responses all mention the content-driven nature of the subject and that content must be carried over or transferred to learners. Teachers with a realist worldview teach actively to learners who are viewed as passive recipients of a pre-established knowledge base, downplaying the role of peers (Andersen *et al.*, 1996:5; Mayer, 1996:151; Rosenshine *et al.*, 1996:181) (cf. 3.3.2).

Apart from their epistemological worldview, it is also apparent that teachers appear to mainly focus on the nurturing of lower-order thinking in relation to Bloom’s Taxonomy for thinking (Bloom, 1956:8) (cf. 2.3), which focus on factual recall of knowledge.

5.7.5.2 Prescription of basic activities on the systemic level

Two of the six interview participants pointed out that the reason for their use of lower order thinking was due to departmental prescriptions that required it to be used. This is evident in the following statements: *“The department (of education) prescribes our activities. There’s nothing more that they need to think for themselves.”* (cf. d.32), *“When we go to our district meetings the facilitator always brings up this issue. We sit with such a low standard”* (cf. e.33).

The two participants cited disturbing systemic reasons as to why they only set basic activities. It is clear from the literature that the nature of the education system in South Africa is split between public (Township and Ex-Model C) and Private Schools (Bisschoff & Koebe, 2005:156-163) (cf. 3.1). The manner in which these schools are run is very different, as Private Schools set and follow their own curricula (Taylor, 2006:1-9) (cf. 3.1) and Public Schools need to adhere to curricula developed and approved by government. As both participants come from different schools, one from a Public and one from a Private School, it is noted that this issue of prescription of basic activities is a concern at both schools despite their differences.

If the above statements from the participants are to be believed, it implies that the Department of Education and the schools themselves are advocating lower standards in education. As stated in the previous interpretation of this section, basic activities only foster thinking on the lower order of Bloom’s Taxonomy (1956:9) (cf. 2.3).

5.7.6 Question 6

What about the under-use of problem solving, evaluating and summarizing? Why are these not used?

The above questions were asked to the participants as the quantitative data revealed that teachers under-use many indirect, independent and interactive instructional strategies (cf. Table 5.11, 5.4).

The following theme was identified from the responses to question 6.

5.7.6.1 Incompetence, logistical and systemic issues regarding the under-use of higher-order activities

One of the six interview participants indicated that teachers are not competent in the creation of higher-order tasks and activities. This is evident in the statement of participant 1, who said *“These are very difficult to use in my opinion. It is very challenging for me to make these tasks”* (cf. a.35).

Three of the six interview participants cited logistical reasons for the under-use of higher-order tasks and activities within the Social Sciences classroom. This is evident in the following statements: *“The learners can share ideas, but it can be very time consuming to mark a learner’s opinion.”* (cf. b.39), *“I think it has to do with Social Sciences teachers not wanting too much work, as it takes effort to make these tasks.”* (cf. c.42), *“It does take effort to set these activities up, so maybe teachers only focus on subjects that they know learners will take up to matric”* (cf. e.47).

Two of the six interview participants responded to this question by identifying systemic reasons as to why higher-order tasks and activities are not being used sufficiently within the Social Sciences classroom. This is evident from the following statements: *“It’s not expected of us to do difficult activities in Grade 9. Bloom’s Taxonomy is not being used at all. This needs to be changed within the department (of education).”* (cf. d.43), *“I always try to bring real life into it, instead of just theoretical words. This school unfortunately lies more on the basic, theoretical way of teaching”* (cf. f.44).

The participants stated that no difficult or challenging tasks are being set up and they are relying solely on basic lower-order activities, as it is not expected of them. Amabile (1999:50) (cf. 2.5.2) states that challenge contributes to creative thinking, which ultimately implies that higher-order activities need to be accomplished in order to promote creative thinking. If only lower-order activities are expected, it influences the learners’ creative fluency negatively (Torrance, 1977:15) (cf. 2.4.3.2). Based on the responses of the participants, the researcher carefully argues that none of the higher-order cognitive skills such as deductions, comparisons, designs, solutions and opinions would be nurtured (Orlich et al., 2004:20) (cf. 2.3). These responses provided insight to

the researcher into the responses received for Section F of the questionnaire where the infrequent use of problem solving was identified (cf. Table 5.14)

5.7.7 Question 7

Learners indicated overwhelmingly that teachers give similar activities to all learners. Will this not hamper creative thinking?

This particular question was asked to participants as the quantitative data revealed that learners are given similar activities, implying that learner flexibility may be hampered (cf. Table 5.12, 5.4).

The following themes were identified from the responses to question 7.

5.7.7.1 Focus on norm-referenced assessment in order to compare learner understanding

Five of the six interview participants indicated that similar activities are given in order to compare levels of understanding, which is otherwise known as norm-referenced assessment. This is evidenced in the following statements: *“The learners need to be assessed as a group for progression purposes.”* (cf. a.44), *“It makes sense for me, that when I mark the activity, I can see who is struggling, If they are all doing different things, it can get confusing.”* (cf. b.46), *“All learners in my opinion need to be given the same task to do, so that we as teachers can compare understanding.”* (cf. c.47), *“They must all do the same activities so that I can assess them as a group.”* (cf. d.51), *“I do give similar activities, as all learners need to be assessed on the same level of understanding. I need to tell from a standard assessment who is progressing and who is not progressing”* (cf. e.53).

Once again, it is noted from the above question that the teachers view regarding knowledge acquisition seems to conform to a realist epistemological worldview. Realist teachers are apt to use norm-referenced assessments such as standardized tests because they are interested in comparing learners concerning how much of the pre-established curriculum they have learned (Schraw & Olafson, 2003:181) (cf. 3.3.2). Additionally, they are apt to use assessments that are developed externally by publishers of their adopted instructional programmes, for example the end-of-unit tests provided in social

studies textbooks (Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299) (cf. 3.3.2).

Teachers seem to focus their efforts on whether or not learners will make progress, and not necessarily on developing meaningful and thoughtful learners. The development of creative learners will be severely hampered if teachers continue to pay primary attention to assessment for progression purposes, which also implied a teacher-centred approach to teaching (Arends, 2004:293; Sing & Khine, 2008:287-289) (cf. 3.3), with very provision for gifted and weaker learners, as all learners must execute exactly the same activities.

5.7.7.2 Curriculum prescriptions require similar activities

Three of the six interview participants also cited curriculum prescriptions, which require the use of similar activities within the Social Sciences classroom. This is evidenced in the following statements: *“The curriculum prescribes content that must be covered, so learners need to do that work.”* (cf. c.49), *“These activities are prescribed like I said in the previous question.”* (cf. d.50), *“We give them similar activities, but the curriculum we follow is very different. In our curriculum the learner comes first”* (cf. f.52).

Systemically, public schools (both Township and Ex-Model C) need to adhere to governmental policies and curricula that are set (Smit & Oosthuizen, 2011: 55-73) (cf. 3.1). Private Schools set up and follow their own curricula, thus giving them more freedom to choose what must be done (Bisschoff & Koebe, 2005:156-163) (cf. 3.1). As is seen from the above statements, the adherence to a curriculum is paramount for these teachers, as they do not seem to deviate from it at all. A distinction is noted between the first two participants and the last, as the first two come from Public Schools and the last participant from a Private School. The Public School teachers state that their curriculum requires similar activities, whereas the Private School teacher said that her school requires it, but that the curriculum focuses more on the learner. This response could mean that although Private School teachers also give all learners the same activities, the focuses more on the individual learner. In line with the view of Borich (2007:12) (cf. 3.4.3), the researcher is of the opinion that this could imply more individual support in terms of setting the same task

at different difficulty levels or allowing a certain degree of freedom with regard to how long to take to finish the task.

5.7.8 Question 8

How do you accommodate gifted learners or learners with barriers if all learners receive similar activities?

The above question was asked to the teacher participants as the quantitative data revealed that teachers were giving similar activities to all learners, therefore bringing into question whether or not gifted and weaker learners were being accommodated (cf. Table 5.12, 5.4).

The following themes were identified from the responses to question 8.

5.7.8.1 Classroom size and time constraints create logistical problems

The interview participants cited various logistical constraints that prevent them from accommodating both gifted and weaker learners in the Social Sciences classroom. The problem referred to most was that of classroom size, which negatively affects the attention given to these learners. Time and effort were also cited. This is evident in the following statements: *“In my classroom I simply do not have the time to draft multiple activities for gifted and weak learners.”* (cf. a.50), *“It’s just that we have so many learners in the classroom now that we as teachers can’t get to all of our learners to help.”* (cf. b.54), *“Well in this case I don’t set up different tasks for these types of learners, that is simply too much work.”* (cf. c.56), *“There is 40 plus learners in a class, so you just try to get through the work so that the majority understands it. I also don’t have the time to accommodate each and every one of the learners”* (cf. d.56).

The responses of the above participants clearly indicate that gifted and weaker learners are not being accommodated within the Grade 9 Social Sciences classroom. Responses mentioned systemic issues relating to classroom size. Literature points out that the majority of the country’s children attend classes at Public Schools, which results in an overcrowded environment at many of these schools. Classroom sizes can exceed 50 learners per class, which also has a negative effect on teaching and learning (Smit & Oosthuizen, 2011:55-73) (cf. 3.1). Based on the aforementioned, it is

understandable that individual attention is severely limited and trying to accommodate gifted and weaker learners in terms of nurturing their creative thinking can become a major problem. In support of Hennessey (2004:37) (cf. 2.6.6), the researcher wishes to emphasize that despite the systemic problems mentioned, gifted learners need to be stimulated more by providing activities that will challenge their creative input.

5.7.8.2 Private Schools accommodate gifted and weaker learners

Interestingly, the last two interview participants came from Private Schools and neither of them indicated any constraints in accommodating weaker and stronger learners. Both of them stated that their schools were making provision for this, albeit in different ways. This is evident in the following statements: *“I do make provision for this; gifted learners will usually come and present their work while the weaker or slower learners will take that opportunity to finish their work and discuss with their peers to get help.”* (cf. e.61), *“With this curriculum, a learner progresses at his or her own rate. If a learner is faster, they can finish their schooling ahead of the normal system. This is how the system rewards you. If you are slower, our system is a bit unforgiving”* (cf. f.64).

The term “gifted and talented”, when used in respect of learners, means learners who give evidence of high performance capability in areas such as intellectual, creative, artistic or leadership capacity (Hennessey, 2004:36) (cf. 2.6.6). Generally, gifted learners learn more quickly, deeply and broadly than their peers. They also demonstrate high reasoning ability, creativity, curiosity, a large vocabulary and an excellent memory. They can often master concepts after few repetitions (Hennessey, 2004:36) (cf. 2.6.6).

What is evident from the above responses is that these particular teachers appear to support the literature review and are indeed nurturing creative thinking in their classrooms, as they are making provision for their gifted learners, as well as for their slower learners. The researcher wishes to emphasize that it is important not to neglect the gifted learners, as their creative potential needs proper stimulation.

5.7.9 Question 9

A large percentage of learner responses indicated that their answers should correspond with those of the textbook, thus hampering their originality. Why is this done?

This particular question was asked to the participants as the qualitative data revealed that, when learners have to answer in their tests and exams, their responses have to be the same as the textbook's information (cf. Table 5.13, 5.4).

The following themes were identified from the responses to question 9.

5.7.9.1 Curriculum of the subject stipulates rote learning should or should not be carried out

A discrepancy was identified within the responses, as participant d indicated that the curriculum requires more than just rote learning of knowledge, whereas participants e and f indicated that the curriculum in their schools requires rote learning. This is evident in the following statements: *"It doesn't work that way with us. Our facilitator also moderates our papers, and they look for open questions."* (cf. d.68), as opposed to *"With map work it has to correspond to their textbook or the theory they have been taught. They just have basic information given to them from a textbook"* (cf. e.71), *"This system requires it, but I am personally against it. In this system if it isn't the same word, it is regarded as wrong"* (cf. f.74).

The above statements point to curriculum requirements that influence the way teachers ask questions in their tests and exams, which ultimately leads to the textbook's answers being used. Given the systemic circumstances of South Africa's education system (Bisschoff & Koebe, 2005:156-163) (cf. 3.1), the use of the textbook is more often than not the only aid readily available in the classroom.

Systemically, Public Schools (both Township and Ex-Model C) need to adhere to governmental policies and curricula that are set (Smit & Oosthuizen, 2011:55-73) (cf. 3.1). Private Schools set up and follow their own curricula, thus giving them more freedom to choose what is done (Bisschoff & Koebe, 2005:156-163) (cf. 3.1). This, however, could lead to teachers simply covering

the curriculum and testing only basic knowledge around that curriculum. Textbooks themselves have garnered a negative reputation in teaching due to this very fact of word-for-word answers expected in these assessments (Killen, 2007:79) (*cf.* 3.8.4). The solution to this problem lies in Private Schools setting up curricula that are open and expect quality, higher-order (Bloom, 1956:8) (*cf.* 2.3) tests and exams that assess learners' understanding on a much deeper level and require more thinking.

5.7.9.2 Perceived lack of effort in setting up quality examination and test papers

In the responses to this question, it was clear that some teachers are willing to put in the effort to set up exams and tests that challenge learners to think more, instead of just memorizing knowledge. However, it has also been identified that many more teachers are simply too lazy to take the time to challenge their learners. This is evident in the following statements: *"Not in my class. Yes true, there are sections that must be factually learnt, but I really try my best to set papers that challenge learners. I think teachers are just too lazy to set good papers."* (*cf.* c.66), *"It (textbook) also helps me when marking, as I have a resource to fall back on and it's faster"* (*cf.* b.64).

The literature states that thinking ranges between lower- and higher-order thinking (Bloom, 1956:8) (*cf.* 2.3). If a test or exam expects only similar answers to that of a textbook, it implies that learners are merely expected to memorize information and apply rote learning (Tournaki, 2003:449) (*cf.* 3.3.3), which fall at the lower-order levels of thinking (Orlich *et al.*, 2004:20) (*cf.* 2.3.1). The above statements indicate that certain teachers apparently do not put in effort to set up higher-order questions in their assessments.

The reasoning of one participant was that marking tests and exams is a lot faster when they have to mark lower-order questions. This is an unacceptable finding, as the learner's originality, defined as ideas that are unusual, different or unique (Torrance, 1977:17) (*cf.* 2.4.3.2), will not be developed at all. The researcher argues that if the learners cannot think for themselves or put answers into their own words, they are not able to conceptualize information

in their own unique way, as they are expected to merely recall definitions provided to them by a textbook.

Teachers must understand that learners need to be able to provide their own answers and to show their own understanding, and not the understanding of the textbook. The responses tend link with the realist worldview, which sees knowledge as fixed and agreed upon by experts, and is considered unchanging (Schraw & Olafson, 2003:180) (cf. 3.3.2).

5.7.9.3 Belief that rote learning is easier for learners

Interestingly, it is also noted that a few of the interview participants held beliefs that, when a child has to perform rote learning, it makes the work easier for the child, thus leading to achievement. In this case, participants a and b held such beliefs, but even more surprising is the fact that both of these teachers came from Township Schools. This theme is evident in the following statements: *“You must remember that when we are assessing learners they must know some facts. I cannot create difficult tests either because then all my learners will do badly. I am trying to assist them.”* (cf. a.58), *“I am going to be forward. The learners remember better if it is from the textbook. If I tell them to go and study pages 1 to 20, then they can answer my test”* (cf. b.61).

This particular belief that rote learning is easier for learners stems directly from the epistemology identified in the literature as the realist world view. The realist worldview assumes that there is an objective body of knowledge that is best acquired through experts via transmission and reconstruction (Weinert & Helmke, 1995:135) (cf. 3.3.2). This knowledge is agreed on by experts and is relatively unchanging (Schraw & Olafson, 2003:180) (cf. 3.3.2).

Realists also emphasize the role of deliberate practice (i.e., systematic daily practice under the tutelage of an expert) to acquire high levels of skill in a domain (Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299) (cf. 3.3.2), and de-emphasize active learner participation.

The researcher is concerned that the apparent realist worldview of some of the interviewed teachers could stifle their own creative thinking with regard to the application of a variety of teaching methods and strategies, thus creating a “comfort zone” of which the teachers do not want to break free. This viewpoint

could create the idea that the teacher does not need to use other resources, but should continue to use the textbook only.

5.7.10 Question 10

It appears that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information. Why is this the case?

This particular question was asked to the teacher participants because the quantitative data revealed that the majority of teaching strategies employed by Grade 9 Social Sciences teachers were direct instructional strategies (cf. Table 5.14, 5.4).

The following themes were identified from the responses to question 10.

5.7.10.1 Ease of maintaining discipline and attention when using direct methods, which leads to better learner understanding

With regard to this particular question, it was unanimously identified that teachers believe that using direct methods creates better discipline within the classroom if the teacher is directly in control. It was also noted that teachers mainly make use of direct methods as they are comfortable using them and do not want to try other methods. This is evident in the following statements: “*I feel that these methods get to the point. They (learners) can remember facts easier if I teach them this way. It allows me to control my class better.*” (cf. a.66), “*It is this way because I feel more comfortable teaching like this. I have my whole class’s attention. I feel that they learn better that way. I am the teacher, they must learn from me.*” (cf. b.70), “*This could be a result of a comfort zone that teachers are too “safe” and want to stick with their tried and tested methods and not change to other, more learner-centred methods.*” (cf. c.79), “*It’s just so much easier to stand in front and preach, than putting all this effort into other things. It’s also just so much easier to maintain discipline this way. With other activities, like role-play, it turns into chaos.*” (cf. d.78), “*Like I said before it is content driven. Class discussions do work, but some learners may become bored with the topic or it could erupt into chaos. Teachers maybe mainly use these methods as they want to cover as much work as quickly as possible*” (cf. e.84).

Literature points out that direct instruction is an overused method (Tuovinen & Sweller, 1999:334-341) (*cf.* 3.3.3) and a teacher-centred method that is limited in its ability to help learners to develop their abilities fully to think critically and creatively (Tuovinen & Sweller, 1999:334-341) (*cf.* 3.3.3). It would appear from the responses that the above teachers do indeed make much use of direct instruction, as it helps with maintaining discipline in the class.

Literature states that the opposite of direct instruction is indirect instruction. Because indirect instruction is learner-centred, it takes more class time to accomplish learning goals. The teacher must therefore give control of the learning to the learners, which may be uncomfortable for some teachers, as they could view it as losing control of the class (Borich, 2007:13) (*cf.* 3.4.3). It would appear that the above participants might be fearful of letting go of their control of the class, because they believe that their discipline would become a problem and the class would become very noisy and chaotic. The issue stems once again from epistemological beliefs of how learners learn best, which appears to be the realist worldview that does not promote individual construction of knowledge (Schraw & Olafson, 2003:180) (*cf.* 3.3.2)

The above teachers simply seem to neglect to make use of other methods and cling to using direct instruction because they probably do not see any value in using the other methods. It is essential that teachers be made aware that when learners learn collaboratively, it helps to enhance creative thinking and develop problem-solving skills (Borich, 2007:12) (*cf.* 3.4.3).

5.7.10.2 Focus on indirect instruction and facilitation as directed by the curriculum

Only one participant indicated that the curriculum that was followed by that particular school made provision for indirect instruction and direct instruction was therefore openly discouraged. This is evident in the following statement: *“Our curriculum encourages learners to read, to recap and to make notes. If learners are struggling, it is my task to facilitate that learning takes place. We here are encouraged not to teach or to correct but to facilitate”* (*cf.* f.83).

The above statement clearly links with the literature, which states that indirect instruction is a learner-centred approach (Borich, 2007:12) (*cf.* 3.4.3) and is

considered to be framed within a constructivist learning theory, which states that learners actively construct or build new ideas or concepts based upon current or past knowledge and experience (Kim, 2005:7) (*cf.* 3.4.1). The participant states clearly that they are expected to become facilitators in their school, which is also linked to indirect instruction in the sense that facilitation characterizes the teaching style of indirect instruction (Borich, 2007:12) (*cf.* 3.4.3). This is a positive statement, according to the researcher, implying that at this particular school, creative thinking is possibly nurtured. Indirect instruction helps develop problem solving skills and its resource-based nature brings depth and breadth to the learning experience (Freiberg, 2002:56; Killen, 2007:51; Loyens *et al.*, 2008:414; McKee *et al.*, 2007:395; Monyai, 2006:118-120; Novak & Cañas, 2006:56; Warburton, 2006:36) (*cf.* 3.8.3 – 3.8.6, 3.8.8, 3.8.9, 3.8.13).

What is also interesting to note is that this particular participant comes from a Private School. The literature points out that Private Schools set their own policies, follow their own curriculum and create their own admission requirements (Bisschoff & Koebe, 2005:156-163) (*cf.* 3.1). What is evident from the response is that this particular Private School has apparently set a very learner-centred curriculum, which according to the researcher is conducive to the nurturing of creative thinking.

5.7.11 Question 11

What about other strategies that are under-used, like mind maps, essays, group work, role-play, field trips and debates? Why are these not used?

This question was asked to participants as the quantitative data revealed that Grade 9 Social Sciences teachers were not making sufficient use of indirect, independent and interactive teaching strategies (*cf.* Table 5.14, 5.4).

The following themes were identified from the responses to question 11.

5.7.11.1 Discipline, time and finance issues prevent use of strategies

Four of the six participants viewed the use of indirect instruction as particularly troublesome, with regard to discipline issues in their use, logistical constraints due to lack of time, as well as financial constraints. These issues are identified

from the following statements: *“I simply do not have the time to get a class debate going, or for them to write essays. Another issue is disorderly behaviour. Letting them role play or work in groups causes a lot of discipline problems”* (cf. a.73). *“Well with essays, it takes way too long to mark. We can’t go on field trips a lot due to funding issues. Debates, role-plays and group work are strategies that cause disruption in my classroom.”* (cf. b.78), *“Besides for the chaos it causes? It’s time-consuming. It takes way too much time to set these up. When they are put in groups it turns to chaos, you can’t get to all of the groups. It wastes a period before they get to their own conclusions”* (cf. d.88). *“All those methods you mentioned are slightly disruptive. As soon as there is disruption, the authorities from the school may come to question you. Next, it is hard to pen those methods into a curriculum. Kids use and abuse these kinds of thing.”* (cf. f.93).

Because the above-mentioned teaching strategies are considered to be learner-centred (Borich, 2007:12; Kim, 2005:8) (cf. 3.4), it may take more class time to accomplish learning goals than when direct instruction is used. As a facilitator, the teacher must give control of the learning to the learners, which may be uncomfortable for many teachers (Borich, 2007:12) (cf. 3.4.3). This is seen in the responses of the participants, as all of them state that once the class is busy with these activities, discipline becomes a major issue. All of them also mentioned that it takes too long for the learners to finish their activities, as seen in the literature as well (Arends, 2004:255) (cf. 3.4.3)

One participant mentioned the issue of finance and it directly links with the section in the literature pertaining to systemic issues in the school system. The particular participant comes from a Township School. Literature also points out that Township Schools are historically underfunded, as opposed to Ex-Model C and Private Schools (Bisschoff & Koebe, 2005:156-163) (cf. 3.1), as they have fewer facilities, fewer classrooms and less teaching learning support material. Therefore, the issue of affording field trips is a problem for some underprivileged schools and needs to be addressed at the systemic level.

5.7.11.2 Particular strategies engage learners and develop thinking skills

Two of the six participants alluded to the notion that indirect instruction is best suited for the development of thinking skills. The idea that these methods foster meaningful learning was also postulated. This is evident in the following statements: *“Well I definitely try to make use of these as I feel they create meaningful learning situations for learners. I also think that these will better develop thinking skills as well, including creative thinking.”* (cf. c.88), *“There is value in these methods, like in debates it forces them to think differently. Field trips are really engaging learners can get to see the content they are taught in real life”* (cf. e.96).

The two participants from the above statements clearly show an epistemological connection with the relativist worldview. Relativists assume that each learner constructs a unique knowledge base that is different, but equal to that of other learners (Bruner, 1961:21; Cobern, 2000:219; Johnston *et al.*, 2001:5-33; Sing & Khine, 2008:287-299) (cf. 3.4.2). It is a learner-centred belief as well, which implies that these teachers are seen as facilitators of learning that can nurture creative thinking.

The belief of the teachers that these methods can develop creative thinking is therefore in line with the literature. Indirect and interactive instructional strategies enhance creative thinking and help to develop problem solving skills (Borich, 2007:94; Ognibene, 2007:24-27) (cf. 3.4). The resource-based nature of the aforementioned strategies brings depth and breadth to the learning experience (Borich, 2007:12) (cf. 3.4.3). This is a very positive finding, indeed, and it is hoped that teachers should share this type of belief across the country. According to the researcher, this is the first step to enhancing creative thinking in the classroom, because even if the merits of these methods are known to teachers, it all depends on their belief regarding knowledge acquisition as to whether they will adopt these methods or not. A convinced realist teacher will possibly not revert to indirect, independent and interactive teaching, which views knowledge acquisition as an active and interactive process.

5.7.12 Question 12

According to the quantitative data, it appears that Private School teachers nurture learner originality the most. Why and how do you think they manage to do this?

The following themes were identified from the responses to question 12.

5.7.12.1 Open classroom climate fosters originality

Five of the six participants stated that the reason why originality is fostered most in these schools is due to an open and friendly classroom climate, in which the teacher allows for interaction and discussion with learners. This is evident in the following statements: *“I allow my learners to share their ideas amongst each other. When I discuss the work, they are free to think for themselves and to give opinions.”* (cf. a.81), *“It is maybe because I am willing to listen to them, they feel open to discuss issues with me.”* (cf. b.87), *“We ask them ‘How do you feel about this?’, ‘Why do you think this and this happened?’ I think that is how we do it, to make them think for themselves, no matter if it’s right or wrong.”* (cf. d.100), *“I think when I do it the most is when learners come to the front and discuss. Their way of conveying information might get other learners to understand more. I see in their responses that they are being a bit more critical. It’s also important that learners be given the opportunity to think for themselves. Like in History, they should have their own opinion on events.”* (cf. e.104), *“In the first place I try to know my learners. I also want them to realize that I see each and every one of them as an individual. I don’t treat you according to the last four demerits you got. I don’t want to put you in that box”* (cf. f.102).

According to the literature, it is noted that one of the four p’s of creativity is the creative place. In a school environment, the classroom should ultimately become the creative place and encourage creative thinking (De Bono, 2004:36-49; Richards, 1999:735; Shi, 2004:173-187) (cf. 2.5.2). The researcher argues that if the classroom provides interesting learning, learners will become motivated to think and act creatively.

The teacher is responsible for creating the climate within the classroom, which can also positively or negatively impact on the nurturing of creative thinking

(McCoy & Evans, 2002:409) (*cf.* 2.6.7). The classroom climate which is best suited for the nurturing of creative thinking is one which fosters psychological safety and intellectual freedom, in which individuals respect one another (Hennessey, 2004:35) (*cf.* 2.6.7). Environments in which judgments and decisions are made from a basis of empathy and understanding, by valuing originality and authenticity, and by using differences of opinion as teaching situations which invite thoughtful analysis, are preferred (McCoy & Evans, 2002:413) (*cf.* 2.6.7). Another important element is that creative thinking will be fostered as reflective teachers come to know their learners on a more personal level (Hennessey, 2004:36) (*cf.* 2.6.7). From the responses obtained, it is quite clear that teachers in Private Schools are indeed, as indicated in the literature, apparently foster a learning environment that allows for the optimal nurturing of creative thinking.

5.7.12.2 Belief that all learners are original

Two of the six participants remarked that originality is fostered best due to the inherent belief that all learners are already original and therefore nurturing is not too convoluted. This statement is further validated from the following responses: *"I am not too sure, perhaps my learners are just very original."* (*cf.* b.86), *"It's not so difficult to nurture originality. All learners are essentially original as we are all unique. So if I ask them questions, they are expected to answer for themselves"* (*cf.* c.101).

According to the literature obtained, originality is defined as any generated idea that is unusual, different or unique, and is considered one of the facets of creative

thinking (Torrance, 1977:17) (*cf.* 2.4.3.2). Originality is therefore a requirement for creative thinking to take place. The belief that these particular interview participants hold is not necessarily incorrect, as the literature points to four differing notions on the derivation of creativity. One of these notions is the idea that creativity derives from cognitive actions. This notion states that creativity (and therefore originality as well) is not unusual, but that it depends on normal cognitive processes (Pfenninger & Shubik, 2001:17) (*cf.* 2.4.1).

Due to the diverse backgrounds of learners with which teachers are faced in South African classrooms, it is clear that diversity can affect creative development. Literature states that there is a link between creative thinking and diversity, primarily achieved by having a variety of opinions or perspectives in the class (Kurtzberg, 2005:53) (cf. 2.4.4.7). This implies that all learners are indeed capable of being original; it just needs to be nurtured effectively.

5.7.13 Question 13

According to the learner responses, the learners taught in English were more positive in the scrutiny of their teacher's teaching strategies for promoting creative thinking than the Afrikaans learners. Why do you think this is the case?

The following themes were identified from the responses to question 13.

5.7.13.1 Afrikaans culture viewed as restrictive and traditional

Five of the six interview participants cite various cultural reasons as the reason why the responses were more negative in the Afrikaans schools as opposed to the English schools. These reasons include the belief that Afrikaans culture is apparently more conservative, formal and focused on discipline and respect. These reasons are deduced from the following statements: *"It is possible that the Afrikaans teachers are stricter when it comes to teaching. Because of this, the learners were more negative."*(cf. a.90), *"Maybe at our schools, we as teachers are more willing to try new methods. We try not to restrict ourselves here."* (cf. b.94), *"I personally feel that it is a cultural thing. My Afrikaans culture places a big emphasis on respect and adult authority. Obviously this means that Afrikaans teachers tend to make use of more authoritative methods when teaching and the learners do not like it."* (cf. c.110), *"When you think of Afrikaans culture one tends to think of order and formality. There aren't that many Afrikaans speaking schools left, so there might be more tradition there. Unlike the English schools which are the majority now, they may have an open environment."* (cf. e.116), *"The discipline in Afrikaans schools is better. That's a fact, it's not a guess. More learning gets done and more kids pass. That is because Afrikaans is*

traditionally a nation of, shall I say, rules. There have always been boxes that you have to fit in, and unfortunately, creativity does not fit in there. I have found English people to have a much more free approach” (cf. f.115).

Culture is defined as the heritage of social norms, ethical values; traditional customs, religious beliefs, political systems of a group of people or community (Duchesne, 2011:28) (cf. 2.6.4). There are a variety of cultures across the world, but the three prevailing global cultures at present can be divided into the Western, African and Eastern cultures (Duchesne, 2011:28) (cf. 2.6.4). Literature points out that creative thinking is viewed differently across cultures, particularly regarding its value for cultures and even in the very meaning of the word (Rudowicz, 2003:273) (cf. 2.6.4).

The prevailing demography of South Africa reveals certain cultural groups, including the Black Africans who constitute the majority of the population, the White Caucasians, the Indians and the Coloureds. The researcher argues that those belonging to the White culture (including the Afrikaans culture) could be classified under the Western culture, as their ancestors came from Europe. Western culture tends to see creative thinking as a quality attributable to a person or a process that frequently produces a novel and appropriate solution to a problem (Mayer, 1996:151) (cf. 2.6.4). The issue then is whether both novelty and appropriateness are uniformly applicable dimensions of creative thinking for people across cultures (Rudowicz, 2003:278) (cf. 2.6.4). Western creativity is seen as having a finite beginning and end and that creative thinking is primarily concerned with innovation (Lubart, 1999:342) (cf. 2.6.4).

The responses indicate a trend in thought regarding stricter, more authoritative teachers at Afrikaans schools that utilize approaches that are more traditional when it comes to teaching. This belief, according to the researcher, could stem from the idea of creativity in the Western culture as being primarily focused on innovation, and not understanding creative thinking from the various other perspectives. The stricter, more traditional Afrikaans teachers therefore possibly do not see value in creative thinking at school level, as evidenced by participant 6 who said *“There have always been boxes that you have to fit in, and unfortunately creativity does not fit in there”*. This misconception could also stem from viewing creative thinking as only a

product or end result (Rhodes, 1961:305-311) (cf. 2.5.3), which is primarily seen in the Western world. Therefore, these teachers seemingly do not see creative thinking as a process, which ultimately leads to their not developing it in their classrooms explicitly.

5.7.13.2 Historical issues prevent Afrikaans teachers from fully teaching certain content

One participant cited certain historical reasons as the reason why teachers tend to skim through certain aspects of History in the classroom, ultimately leading to a lack of meaningful learning. This statement is further validated from the following statement: *“It could be because of certain sections of the history. It’s more politically correct to just basically cover the work on Apartheid and not flare up any emotions through discussions. As an Afrikaner, I also don’t want to talk about it. Also, the different race groups all have differing opinions, which can be dangerous. So at white schools they just don’t talk about it, they just get it over with as quickly and as painlessly as possible”* (cf. d.112).

The above-mentioned theme relates directly to the history of South Africa, primarily regarding Apartheid in this country. The literature study did not aim at addressing the inequalities of the past, but rather envisage to find opportunities in the present education system for nurturing creative thinking. It is obvious that historical issues are a very sensitive subject for many South Africans, and it seemingly influences the way in which teachers handle the content. In the case of participant 4 who is Afrikaans, it is evident that the content of Apartheid in the History section of Social Sciences is merely being skimmed through and the bare minimum is covered. The reason for this lies squarely in cultural and historical factors (Rudowicz, 2003:273) (cf. 2.6.4). It can no doubt create controversy while covering this topic, especially in the diverse classrooms that teachers face (Kurtzberg, 2005:53) (cf. 2.4.4.7).

What is of paramount importance to the researcher, is the fact that learners might not benefit from this type of teaching if the teachers covering controversial topics are just getting through the work as quickly as possible, without allowing deep thought-provoking, creative learning to take place. The

researcher argues that if teachers do not take the time to teach the content thoroughly and qualitatively, only lower-order thinking will develop.

5.7.14 Question 14

Data obtained suggested that Township School teachers do not foster flexible thinking and original thinking in their learners as much and as successfully as Ex-Model C or Private Schools do. Why do you think this is so? What do you think can be done to nurture flexible and original thinking more?

The following themes were identified from the responses to question 14

5.7.14.1 Better finances, environment and resources in Private Schools

Three of the six interview participants indicated that Private Schools inherently have much better facilities, as well as more finances, allowing better resources to be used in the classroom. This is validated from the following statements: *“It comes down to resources. These other richer schools have the money to buy things to assist their learners. Here in the township, we must make do with what we have”* (cf. a.98). *“The Private Schools have smaller classes, more resources and they have more money to spend in a class for History or Geography. They can afford to take them on trips to museums. We here just don’t have the time or the money to do these things. There is more individual attention in those schools”* (cf. d.125). *“I think with the Township Schools, not to be biased, are maybe more concerned with day to day running of the school with discipline and finance. Maybe their teachers simply want to get through the work as quickly as possible. Maybe also the environment is less stressful in a private school, more of an open learning environment”* (cf. e.126).

The responses to the above question all point to systemic issues inherent in the South African education system. In order to interpret the responses, the literature pertaining to the systemic context of education must be looked at. The Private Schools are known for their abundant access to resources, such as facilities and teaching and learning support material. This is due to the larger income from school fees as opposed to the public schools which are run and financed by government (Taylor, 2006:1-9) (cf. 3.1).

The Ex-Model C Schools are generally in a much better financial position than those schools in the townships, as they have better facilities, more classrooms and have access to better teaching and learning support material (Bisschoff & Koebe, 2005:156-163) (cf. 3.1). This is due to a variety of factors, one of the most important being historical. Therefore, with this in mind, it is noted that the Township Schools are usually considered to be underperforming schools, where low matriculation marks are seen, as well as sub-standard teaching and learning occurring within the classroom, although there are exceptions to this (Taylor, 2006:1-9) (cf. 3.1).

The responses link with the literature, as the participants all alluded to Private Schools having far more finances and availability of resources as opposed to the Public Schools. These systemic issues therefore appear to hamper the nurturing of creative thinking, especially as the question states, with regard to flexibility. Learners in less fortunate environments and schools might therefore not become flexible thinkers, as they aren't exposed to different resources in the classroom because these schools are simply unable to afford them.

5.7.14.2 Higher standards expected at Private Schools

Four of the six interview participants indicated that the standard of education at Private Schools expects learners to perform better than at other schools due to a variety of factors, including curriculum, higher school fees, pass rates and qualified teachers. This is further validated in the following statements: *"These other schools have more qualified teachers, so they know what to do when it comes to developing thinking"* (cf. b.101); *"The Private Schools in my opinion have stronger learners than what we have here in the public schools, so maybe they can develop flexible thinking and originality a whole lot easier than the public schools can."* (cf. c.119); *"I think at Private Schools the parents pay a lot of money for their children and they expect results, they want their children to go to university"* (cf. e.130); *"The best thing I can say about this school is that it nurtures the learner's ability to learn by himself. I may not like the system, in which your answer must be like the textbook, but our pass rate is very high and our requirements are 80% or you don't pass"* (cf. f.127).

The responses to the question clearly indicate that standards are set much higher at the Private Schools. The literature state that the independent Private Schools make their own policies, set their own admission requirements and follow their own curriculum (Bisschoff & Koebe, 2005:156-163) (*cf.* 3.1). These Private Schools are generally considered to be more elitist, where wealthy parents send their children to get the best education that money can buy (Taylor, 2006:1-9) (*cf.* 3.1). These schools therefore seem to be wealthier and have access to many forms of support material and facilities, implying that the level of education received at these schools are of a higher standard. The responses mention high requirements to pass to the next grade, being 80%, or the learners fail. This is stipulated by the policies that the Private Schools follow, as they set and follow their own curriculum. What remains unclear is whether the Township and Ex-Model C Schools will raise their standards so that flexible thinking will be nurtured in their respective schools as well as at the Private Schools.

The field notes that the researcher compiled during the interview, did not point to any of the participants not being willing to share their opinions. Two of the participants appeared to be quite defensive about the way they teach, but open to share their views. The researcher was not sure whether they were afraid that the interview might influence their work situations. Therefore, the researcher explained to them that the interview will not have any impact on their positions at their respective schools, and that appeared to set them at ease. All of the other participants were friendly and open to contribute to the discussion.

In the following section, the quantitative and qualitative data are integrated with the aim that the qualitative data explain the responses obtained by the questionnaires.

5.8 COMBINING QUANTITATIVE AND QUALITATIVE DATA

This section aims to combine the data sets obtained for both the quantitative and qualitative data. The idea is to give the reader a better understanding of the phenomenon creative thinking and its nurturing through the choice of teaching methods.

The first subsection will combine the data sets relating to creative elaboration.

5.8.1 Elaboration

The quantitative data pertaining to the nurturing of elaboration indicated an under-use of, *inter alia*, political cartoons and photographs in the Social Sciences classroom (*cf.* Table 5.10), and a heavy reliance on the use of the chalkboard, maps, and textbooks (*cf.* Table 5.10).

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons for the under-use of political cartoons and photographs:

- Various financial and logistical reasons affect the under-use of resources (*cf.* 5.7.4.1).
- Particular resources create controversy in the classroom, and are avoided (*cf.* 5.7.4.2).
- Teachers appear to be incompetent in the use of particular resources (*cf.* 5.7.4.3).

The interview data explained that the heavy reliance on the use of the chalkboard, maps and textbooks could be attributed to financial and logistical reasons related to the use of basic resources (*cf.* 5.7.3.1)

The next subsection will combine data sets relating to creative fluency.

5.8.2 Fluency

The quantitative data pertaining to the nurturing of fluency indicated an under-use of problem solving, evaluating and summarizing when setting up activities in the Social Sciences classroom (*cf.* Table 5.11) and a heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information in activities (*cf.* Table 5.11).

In order to establish the reasons for the aforementioned trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons for the heavy reliance on the factual recall of knowledge, to motivate answers to questions and the understanding of information:

- The content-driven nature of the Social Sciences learning area promotes the use of basic activities (*cf.* 5.7.5.1).
- There are a number of prescribed basic activities on the systemic level (*cf.* 5.7.5.2) which teachers adhere to.

According to the interview data, the under-use of problem solving, evaluating and summarizing could be attributed to the incompetence of teachers, as well as logistical and systemic issues influencing the use of higher-order activities (*cf.* 5.7.6)

The next subsection will combine data sets relating to creative flexibility.

5.8.3 Flexibility

The quantitative data pertaining to the nurturing of flexibility indicated an overwhelming use of similar activities for all learners in the Social Sciences classroom (*cf.* Table 5.12). The responses ultimately raised the issue of whether teachers accommodate gifted learners who should be challenged with creative tasks, as well as learners who experience barriers to learning, if all learners receive similar activities.

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons for teachers issuing similar activities to all learners in the class:

- Teachers focus on a teacher-centred approach to teaching and emphasize norm-referenced assessment in order to compare learner understanding (*cf.* 5.7.7.1).
- Curriculum prescriptions require that learners do similar activities (*cf.* 5.7.7.2).

The reasons given as to why teachers are not accommodating gifted and weaker learners because all learners receive similar activities were linked to the following issues:

- Classroom size and time constraints create logistical problems in accommodating different learner needs (*cf.* 5.7.8.1).

- Private Schools adopt a more learner-centred curriculum and therefore create opportunities to accommodate gifted and weaker learners (*cf.* 5.7.8.2).

The next subsection will combine data sets relating to creative originality.

5.8.4 Originality

The quantitative data pertaining to the nurturing of originality indicated that the Social Sciences learners' answers should correspond exactly with that of the textbook, (*cf.* Table 5.13), which ultimately hampers their originality.

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons for why teachers expect learners' answers to correspond exactly with those of the textbook:

- The curriculum stipulates that rote learning should take place (*cf.* 5.7.9.1).
- There appears to be a perceived lack of effort among teachers in setting up quality exam and test papers (*cf.* 5.7.9.2).
- Teachers hold the belief that rote learning is easier for learners (*cf.* 5.7.9.3).

The next subsection will combine data sets relating to teaching methods.

5.8.5 Teaching methods, strategies and resources

The quantitative data pertaining to the choice of teaching methods indicated that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information (*cf.* Table 5.14). In addition, the following teaching strategies appear to be under-used: mind maps, essays, group work, role play, field trips and debates (indirect, independent, interactive and experiential learning) (*cf.* Table 5.14).

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons why direct instruction is mainly used in the teaching of Social Sciences:

- Teachers appear to find it easier to maintain discipline and attention when using direct methods, which leads to better learner understanding (*cf.* 5.7.10.1)
- Private Schools focus on indirect instruction and facilitation as directed by their school curriculum (*cf.* 5.7.10.2)

The use or under-use of mind maps, essays, group work, role-play, field trips and debates could be attributed to:

- The use of the aforementioned strategies could lead to discipline problems, which teachers want to avoid. In addition time and financial constraints prevent use of strategies (*cf.* 5.7.11.1)

The quantitative data pertaining to the nurturing of elaboration indicated an under-use of specific resources, including political cartoons and photographs in the Social Sciences classroom (*cf.* Table 5.10) and a heavy reliance on the use of the chalkboard, maps and textbooks (*cf.* Table 5.10), which concur with the qualitative findings. The interview participants cited various reasons as to why these resources are under-used, namely that financial and logistical reasons create the under-use of resources (*cf.* 5.7.4.1), the particular resources create controversy in the classroom (*cf.* 5.7.4.2) and the teachers show incompetence in the use of particular resources (*cf.* 5.7.4.3). The heavy reliance on the use of the chalkboard, maps and textbooks could be attributed to financial and logistical reasons for use of basic resources, as they are the only readily available resources (*cf.* 5.7.3).

The next subsection will combine data sets relating to the finding that Private School teachers nurture learner originality the most.

5.8.6 Private school teachers nurture learner originality the most

The quantitative data pertaining to the analysis of the variable “type of school” indicated that Private School teachers nurture learner originality the most (*cf.* Table 5.19).

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as

possible reasons why Private School teachers nurture learner originality the most:

- Private Schools create open classroom climates that foster originality (*cf.* 5.7.12.1)

The next subsection will combine the data sets relating to the finding that learners taught in English were more positive in the scrutiny of their teacher's teaching strategies for promoting creative thinking as opposed to the Afrikaans learners.

5.8.7 Learners taught in English were more positive in the scrutiny of their teacher's teaching strategies for promoting creative thinking as opposed to the Afrikaans learners

The quantitative data pertaining to the analysis of variance of the variable "language" indicated that Afrikaans learners were more negative regarding their Social Sciences teacher's frequent use of teaching methods and strategies to nurture creative thinking compared to those from English schools (*cf.* Table 5.17).

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons why Afrikaans learners were more negative when scrutinizing their teachers' teaching methods:

- The Afrikaans culture is viewed as restrictive and traditional (*cf.* 5.7.13.1).
- Historical issues prevent Afrikaans teachers from teaching certain content fully (*cf.* 5.7.13.2).

The next subsection will combine data sets relating to the finding that Township School teachers do not foster flexible and original thinking in their learners as much and as well as Ex-Model C or Private Schools do.

5.8.8 Township Schools do not foster flexible and original thinking as well as Private Schools

The quantitative data pertaining to the analysis of the variable "type of school" indicated that, at the Township Schools, flexible and original thinking was not

being nurtured as well as in the Ex-Model C or Private Schools (*cf.* Table 5.19).

In order to establish the reasons for these trends during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons why Private Schools outperform Township Schools when it comes to nurturing creative thinking.

- Private Schools have better finances at their disposal to obtain resources and create an environment that nurtures creative thinking(*cf.* 5.7.14.1).
- Higher standards are expected at Private Schools (*cf.* 5.7.14.2).

In conclusion, it appeared to the researcher that the experience of teachers (*cf.* 5.7.1.1) did not contribute greatly to their practices being geared towards the nurturing of creative thinking, as noted by Goldhaber and Brewer (2000:129-145) (*cf.* 3.1).

5.9 CHAPTER SUMMARY

The data obtained from the questionnaire for the learners and the interviews with the teachers were analysed and interpreted in this chapter, in which descriptive and inferential statistics were used for the quantitative data, and a content analysis was used to analyse the interview data.

Findings from this questionnaire indicate that, with regard to the first section of **creative elaboration**, an under-use of certain resources is evident, such as political cartoons and photographs in the Social Sciences classroom (*cf.* Table 5.10) (*cf.* 5.4). A general reliance on the chalkboard, maps and textbooks was also evident.

The next section to be analysed and interpreted from the questionnaire was that of **creative fluency** (*cf.* Table 5.11) (*cf.* 5.4). A heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information was prevalent in the responses.

Following the analysis and interpretation of creative fluency, the following questionnaire section asked questions relating to **creative flexibility** (*cf.* Table 5.12) (*cf.* 5.4). The findings revealed that teachers overwhelmingly make use of similar activities for all learners in the classroom, thus raising

questions on whether teachers are accommodating gifted and weaker learners (*cf.* Table 5.12) (*cf.* 5.4).

The second last questionnaire section dealt with **creative originality** in the Social Sciences classroom (*cf.* Table 5.13) (*cf.* 5.4). The questions posed here focused on the teacher, and the climate fostered within the classroom and if originality was being nurtured. The findings for this section indicate that teachers expect learner responses to correspond exactly with those of the textbook, which hampers originality (*cf.* Table 5.13) (*cf.* 5.4).

The last questionnaire section was then analysed and interpreted, dealing specifically with the **teaching methods** and **strategies** being employed by the teacher in the Social Sciences classroom (*cf.* Table 5.14) (*cf.* 5.4). The questions asked whether the teacher is or is not making use of said methods, ranging from direct, indirect, independent and interactive methods. Findings from this section revealed that direct instruction is mainly used, such as lecturing, drilling of information and repetition of information. An under-use of certain indirect and interactive methods was also noted, particularly the use of essays, mind maps, group work, role play, field trips and debates (*cf.* Table 5.14) (*cf.* 5.4).

The subsequent section dealt with the comparison of questionnaire sections, to highlight which sections were the most and the least nurtured (*cf.* Table 5.15) (*cf.* 5.5). The mean scores and standard deviations were compared, and the section with the highest score was ultimately the most problematic. Findings indicated that **originality** was the most positively nurtured tenet of creative thinking, with the most problematic tenet being **elaboration**. The teaching methods section was also very negative (*cf.* Table 5.15) (*cf.* 5.5).

Following the comparison of questionnaire sections, an analysis of variance was conducted in order to determine if participants differed in opinion relating specifically to the different biographic variables. For all comparisons, an ANOVA was utilized in order to determine if differences between means were statistically significant or not.

The first variable in which responses were compared was the language of instruction (*cf.* Table 5.16) (*cf.* 5.6.2), which revealed that learners who were

taught in English were more positive with the scrutiny of their teacher's teaching methods to promote creative thinking as opposed to the learners taught in Afrikaans (*cf.* Table 5.16) (*cf.* 5.4).

Following that, the responses were compared between the genders of participants (*cf.* Table 5.17) (*cf.* 5.6.2), which revealed differences in opinion between male and female participants regarding the teacher's use of teaching methods (*cf.* Table 5.17) (*cf.* 5.6.2), with the females being less positive than the males that the teaching methods and strategies of the teachers nurture creative thinking.

A comparison between the perceptions of the Afrikaans and English learners revealed that the Afrikaans learners were more negative regarding their teachers' efforts to nurture creative thinking (*cf.* Table 5.17).

Comparisons between responses were also carried out for the different types of schools (*cf.* Table 5.18) (*cf.* 5.6.2), in which findings suggested that Private School teachers nurture learner originality and flexibility the most and that Township Schools do not foster flexible thinking as well as Private Schools and Ex-Model C Schools do (*cf.* Table 5.18) (*cf.* 5.4). Private Schools also nurture flexible thinking on a more frequent basis than the Ex-Model C Schools (*cf.* Table 5.20).

The last biographical variable to be compared was the ethnic background of participants (*cf.* Table 5.20) (*cf.* 5.6.2). The Black participants appeared not to be as convinced as the Asian/Indian/Coloured participants were that their teachers frequently nurture flexible thinking. In addition, the White participants perceived their teachers' application of teaching strategies to nurture creative thinking less frequently than what the Black learners perceived the application of their teachers' teaching strategies (*cf.* Table 5.22).

The next section dealt with the analysis and interpretation of the qualitative section of the study, namely the teachers' interview responses (*cf.* 5.7). From the content analysis, major patterns and themes were extracted, which were analysed and interpreted. To validate the themes further, literature were consulted to substantiate arguments (*cf.* 5.7). Once the teachers were interviewed, they responded by saying that they did not use the resources due

to financial and logistical issues that prevent them from using them properly (*cf.* 5.7.4.1). Again, when asked why the teachers make more use of the chalkboard, maps and textbooks, more financial and logistical reasons were given. They make use of these resources because they are readily available (*cf.* 5.7.3). The content-driven nature of the subject promotes the use of basic activities and these basic activities were being prescribed on the systemic level (*cf.* 5.7.5.1, 5.7.5.2). The under-use of higher-order activities was attributed to incompetence, logistical and systemic issues (*cf.* 5.7.6). Teachers mainly focus on standard-based assessment in order to report learner understanding as the main reason why similar activities are given, along with curriculum prescriptions (*cf.* 5.7.7.1, 5.7.7.2). It was also noted that a few teachers believe that rote learning is easier for learners (*cf.* 5.7.9.3). Some also lack the effort to construct quality test, exam papers (*cf.* 5.7.9.2), and lastly the curriculum expects rote learning to be carried out (*cf.* 5.7.9.1). Findings highlighted that teachers believe it is easier to maintain discipline and attention when using direct methods, and that learners understand information better if these methods are used. Their reasons why the other methods are under-used also linked with discipline issues, the amount of time it takes to use these methods, as well as financial burdens (*cf.* 5.7.11.1).

The next chapter, Chapter 6, will focus on summarizing the entirety of the study, as well as pointing out the major findings from the research. Recommendations will also be made to conclude this study.

CHAPTER 6

SUMMARY, FINDINGS AND RECOMMENDATIONS

6.1 INTRODUCTION

This study was conducted with the purpose of identifying the extent to which teachers nurture creative thinking in the Grade 9 Social Sciences classrooms through the choice of teaching methods. The main aim and objectives that were formulated at the onset of the study (*cf.* 1.5) are revisited in this chapter, in order to determine whether they were achieved.

It is essential that the literature study and the data gathered by means of a questionnaire and interviews, should have answered the primary and secondary questions (*cf.* 1.4) on which this study was based, achieving the overall aim and objectives (*cf.* 1.5) of the study. This chapter will address the following:

- An overview of the study
- Findings from the literature review
- Findings from the empirical research
- Findings in relation to the aim and objectives of the study
- Recommendations
- Limitations of the study
- Suggestions for further research
- Contributions of the study
- Conclusions

6.2 AN OVERVIEW OF THE STUDY

The overview of the study intends to provide a brief summary of the gist of the preceding chapters of the study.

6.2.1 Chapter 1

The purpose of this chapter was to orientate the reader regarding the purpose statement, the aims and objectives of the study and the empirical research design utilized in the study (*cf.* 1.5; 1.6.3). The purpose statement, which was translated into the main aim of the study, focused on the choice of teaching methods that could nurture the nurturing of creative thinking in the Grade 9 Social Sciences classroom by examining learner perceptions (*cf.* 1.5).

A sequential explanatory mixed method design was utilized for this research (*cf.* 1.6.3). The quantitative phase made use of a questionnaire, which would identify the extent to which creative thinking was being nurtured by examining the perceptions of a sample of Grade 9 Social Sciences learners. A phenomenological research strategy guided the qualitative interviews to enhance and enrich the understanding of the quantitative phase by interviewing the teachers ($n = 6$) of the learners who completed the questionnaires (*cf.* 1.6.5; 1.7.1).

The research was conducted with a cohort of Grade 9 learners from Ex-Model C, Township and Private Schools in the D7 district ($n=399$). Non-probability purposive convenient sampling was utilized for the selection of the research participants, as they were near, available and suited the purpose of the study (*cf.* 1.6.5).

6.2.2 Chapter 2

Chapter 2 focused primarily on the literature pertaining to creative thinking. Research related to creativity started as early as 1948 with the work of Poincare (1908:12) (*cf.* 2.2) and the official starting point of scientific research commenced with the work of Guilford (1966:186) in 1950 (*cf.* 2.2).

Creativity is a cognitive skill (Dembo & Seli, 2004:2; Matlin, 2002:2) (*cf.* 2.3) that involves novelty; originality and imagination (*cf.* 2.4). There are various beliefs regarding the origins of creativity, ranging from grace, accident, association and cognitive origins (Henry, 1991:12; Pfenninger & Shubik, 2001:15) (*cf.* 2.4.1).

The tenets of creativity research were addressed by looking at the works of Guilford (1966:186) (*cf.* 2.4.3.1) as well as Torrance (1977:14) (*cf.* 2.4.3.2),

where the tenets of flexibility, originality, elaboration and fluency were addressed (Torrance, 1977:14) (*cf.* 2.4.3.2). These four tenets paved the way for the rest of the research.

Creativity takes various forms, such as artistic creativity (Sullivan & Harper, 2009:20) (*cf.* 2.4.4.1), academic creativity (Sternberg, 2006:87) (*cf.* 2.4.4.2), industrial creativity (Mumford, 2003:107) (*cf.* 2.4.4.3), as well as intellectual creativity (O'Hara & Sternberg, 1999:251) (*cf.* 2.4.4.4). This research focused on the nurturing of creative thinking in an academic context.

The four facets of creativity were also addressed, which involve the creative person, place, product and process (Isaksen *et al.*, 2000:75) (*cf.* 2.5). The facets were translated to the classroom context, referring to the learner, classroom, learning outcomes and the teaching and learning process to nurture creative thinking, respectively.

Various barriers were identified that can hamper creative development, such as intelligence (Runco, 2003:317) (*cf.* 2.6.1), motivation (McCoy & Evans, 2002:409) (*cf.* 2.6.2), personality (Ryckman, 2004:16) (*cf.* 2.6.3), culture (Rudowicz, 2003:273) (*cf.* 2.6.4), gender differences (Baer, 2005) (*cf.* 2.6.5), giftedness (Hennessey, 2004:35) (*cf.* 2.6.6), as well as classroom climate (Starr, 2004:5) (*cf.* 2.6.7). The latter barrier was the focus of this research.

The inherent value of nurturing creative thinking among learners was established (Puccio *et al.*, 2006:19) (*cf.* 2.7), and then more specific attention was given to nurturing creative thinking in the Social Sciences classroom (Department of Education, 2003:3) (*cf.* 2.8). Each learning outcome for both History and Geography were scrutinized and it became evident that each learning outcome could be linked to nurturing creative thinking.

6.2.3 Chapter 3

This chapter differentiated between teaching styles, teaching methods and teaching strategies (*cf.* 3.2). Firstly, the chapter elucidated direct instruction (Burden & Byrd, 2003:120) (*cf.* 3.3). Behaviourism underpins direct instruction (Arends, 2004:293) (*cf.* 3.3.1), proposing that learners learn through a process called conditioning and that the environment shapes learner behaviour. The epistemological framework of direct instruction links to the realist world view,

which sees knowledge as objective and learners as passive recipients (Schraw & Olafson, 2003:180) (*cf.* 3.3.2),

Direct instruction (Arends, 2004:293; Monyai, 2006:107-109) (*cf.* 3.3.3) utilizes a transmission-reception teaching style, which holds the view that education is teacher-centred. The various teaching strategies that are found in direct instruction are namely demonstrations (McKee *et al.*, 2007:395; Monyai, 2006:110-112), didactic questioning (Arends, 2004:293), drill-and-practice (Tournaki, 2003:449), explicit teaching (Boyles, 2004:2), mastery lecture (Bligh, 2000:4) and structured overview (Boyles, 2004:2).

The indirect instruction teaching method and strategies (Borich, 2003:94) (*cf.* 3.4) underpinned by the constructivist learning theory (Kim, 2005:7) (*cf.* 3.4.1) were explained. Constructivism views learning as a process of constructing knowledge. The epistemological framework that underpins indirect instruction is the relativist worldview, which assumes that learners construct unique knowledge bases (Schraw & Olafson, 2003:182) (*cf.* 3.4.2). The various teaching strategies (*cf.* 3.4.3) that guide the implementation of indirect instruction are case studies (Monyai, 2006:118-120; Yin, 2009:37), cloze procedure (Chatel, 2001:3-6), concept attainment (Gunter *et al.*, 2010:109), concept formation (Gunter *et al.*, 2010:110), concept-mapping (Novak & Canas, 2006:56), problem solving (Loyens *et al.*, 2008:414) and reading for meaning (Miller, 2002:16).

The use of the independent instruction teaching method and strategies (Philpott, 2009:38,47) (*cf.* 3.5) is underpinned by cognitivist and constructivist learning theories, which view the memory system as an active organizer of information, in which prior knowledge plays an important role in learning (Wallace *et al.*, 2007:128) (*cf.* 3.5.1). In addition, learners should be actively involved in the construction of knowledge. The epistemological framework linked to independent instruction is the relativist worldview, which assumes that each learner constructs a unique knowledge base (Schraw & Olafson, 2003:184) (*cf.* 3.5.2).

Independent instruction makes use of a facilitation teaching style (Borich, 2007:17) (*cf.* 3.5.3), which is learner-centred. The teaching strategies (*cf.*

3.5.3) that promote independent instruction comprise assigned questions (Prince & Felder, 2006:123), computer-assisted instruction (Sessoms, 2008:86), essays (Warburton, 2006:25), homework (Bennett & Kalish, 2006:12) and research projects (Freiberg, 2002:56).

Interactive instruction (Kramer, 2006:104) (*cf.* 3.6), underpinned by constructivist learning theory (Maxim, 2010:315) (*cf.* 3.6.1) views learning as a process of constructing knowledge. The epistemological framework of interactive instruction, namely the contextualist worldview, assumes that learners construct shared understanding in collaborative contexts (Schraw & Olafson, 2003:184) (*cf.* 3.6.2).

Interactive instruction also utilizes a facilitation teaching style (Ognibene, 2007:30) (*cf.* 3.6.3) with strategies (*cf.* 3.6.3) such as brainstorming (Monyai, 2006:120-121; Santanen *et al.*, 2004:167-198), cooperative learning groups (Joubert *et al.*, 2008:5), debates (Darby, 2007:78-89; Machiette, 2009:12-15), discussions (Arends, 2009:418-438) and problem solving (Van Rooy, 2006:105).

Experiential learning, (Merriam *et al.*, 2007:155) (*cf.* 3.7), that is constructivist in nature (Kim, 2005:7) (*cf.* 3.7.1), views learning as a process of constructing knowledge in practical hands-on situations. Experiential learning is framed within a contextualist worldview (Schraw & Olafson, 2003:182) (*cf.* 3.7.2), which assumes that learners construct shared understanding in collaborative contexts. Experiential learning involves the application of strategies (*cf.* 3.7.3) such as interviewing (Lipton & Wellman, 1998:14), role-plays (Fogg, 2001:12) and field trips (Killen, 2007:50).

A number of teaching methods and strategies for the Social Sciences classroom was undertaken (*cf.* 3.8). These strategies were identified as lecturing (Bligh, 2000:3) (*cf.* 3.8.1), drill-and-practice (Tournaki, 2003:449) (*cf.* 3.8.2), demonstration (McKee *et al.*, 2001:395) (*cf.* 3.8.3), problem solving (Morrison *et al.*, 2011:312) (*cf.* 3.8.4), case studies (Yin, 2009:37) (*cf.* 3.8.5), mind maps (Novak & Cañas, 2006:56) (*cf.* 3.8.6), homework (Bennett & Kalish, 2006:13) (*cf.* 3.8.7), research projects (Freiberg, 2002:56) (*cf.* 3.8.8), essays (Warburton, 2006:34) (*cf.* 3.8.9), discussions (Gunter *et al.*,

2010:190)(*cf.* 3.8.10), cooperative learning (Monyai, 2006:124-129) (*cf.* 3.8.11), role-play (Fogg, 2001:13) (*cf.* 3.8.12), field trips (Killen, 2007:50) (*cf.* 3.8.13), debates (Derby, 2007:78-89) (*cf.* 3.8.14) and questioning (McKenzie, 2007:29) (*cf.* 3.8.15). Strategies that promote independent and interactive learning such as research projects, essays, role-play; field trips, case studies and problem solving were identified as important for nurturing creative thinking.

Finally, the chapter focused on the use of specific resources within the Social Sciences classroom (*cf.* 3.9). These resources were political cartoons (Bickford, 2011:65) (*cf.* 3.9.1), photographs (Shoob & Stout, 2008:73) (*cf.* 3.9.2), maps (Van Rooyen & Van der Merwe, 2008:243-250) (*cf.* 3.9.3), textbooks (Killen, 2007:78) (*cf.* 3.9.4), chalkboards (Kincheloe, 2011:12) (*cf.* 3.9.5), overhead projectors (Van Rooyen & Van der Merwe, 2008:251-253) (*cf.* 3.9.6), audio-visual media (Van Rooyen & Van der Merwe, 2008:253) (*cf.* 3.9.7) and information communication technology (Van Rooyen & Van der Merwe, 2008:254-256) (*cf.* 3.9.8). The resources that were regarded as important for nurturing creative thinking were *inter alia* political cartoons and photographs.

This chapter revealed that in order for teachers to nurture creative thinking through their choice of teaching methods, more indirect, independent, experiential and interactive methods should supplement the use of the direct instruction method. The epistemological view that supports the nurturing of creative thinking is that of the relativist and contextualist worldview. Only in this way will learners be able to make use of higher-order thinking skills, enrich their understanding and generate multiple ideas when dealing with their subject content.

6.2.4 Chapter 4

By means of sequential explanatory mixed method research, data were collected from Grade 9 Social Sciences learners to determine their perceptions regarding their teachers' use of teaching methods to nurture creative thinking.

The identified tenets of creative thinking (flexibility, originality, fluency, elaboration) (Torrance, 1977:14) (*cf.* 2.4.3.2) formed the basis of the questionnaire (*cf.* 4.3.5.1), as well as a variety of teaching strategies linked to various teaching methods (*cf.* 3.3-3.8), and resources (*cf.* 3.9) according to which the learners' perceptions were obtained. Allowing for a subjective stance towards the study, a qualitative data collection instrument was utilized, namely structured one-on-one interviews, which were administered to Grade 9 Social Sciences teachers, in order to deepen the understanding of the quantitative data obtained from the learners (*cf.* 4.3.5).

6.2.5 Chapter 5

The data obtained from the learner questionnaire and the interviews with the teachers were analysed and interpreted in this chapter, in which descriptive and inferential statistics were used for the quantitative data, and a content analysis was used to analyse the interview data.

In the section dealing with creative fluency, the learners indicated that there is an under-use of problem solving, evaluating and summarizing when setting up activities in the Social Sciences classroom (*cf.* Table 5.11) (*cf.* 5.4). In addition, a heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information was found (*cf.* Table 5.11) (*cf.* 5.4).

The following questionnaire section asked questions relating to creative flexibility (*cf.* Table 5.12) (*cf.* 5.4). The findings revealed that teachers make overwhelming use of similar activities for all learners in the classroom, thus raising questions on whether they are accommodating gifted and weaker learners (*cf.* Table 5.12) (*cf.* 5.4).

The second last questionnaire section dealt with creative originality in the Social Sciences classroom (*cf.* Table 5.13) (*cf.* 5.4). These questions focused on the teacher, the climate fostered within the classroom and whether originality was being nurtured. The findings indicated that teachers expect learner responses to correspond exactly with that of the textbook, which hampers originality (*cf.* Table 5.13) (*cf.* 5.4).

The last questionnaire section dealt specifically with the teaching methods being employed by the teacher in the Social Sciences classroom (*cf.* Table 5.14) (*cf.* 5.4). The questions asked whether the teacher is making use of direct, indirect, independent, experiential and interactive methods. Findings from this section revealed that direct instruction is mainly used, by applying strategies such as lecturing, drilling of information and repetition of information. An under-use of certain indirect, experiential and interactive methods was also noted, particularly the use of essays, mind maps, group work, role play, field trips and debates (*cf.* Table 5.14) (*cf.* 5.4).

The subsequent section dealt with the comparison of questionnaire sections to highlight which section was the most nurtured and the least nurtured (*cf.* Table 5.15) (*cf.* 5.5). The mean scores were compared, and the section with the highest score was ultimately the most problematic. Findings indicated that **originality** was the most positively nurtured tenet of creative thinking, with the most problematic tenet being **elaboration**.

Following the comparison of questionnaire sections, an analysis of variance was conducted in order to determine if participants differed in opinion relating specifically to the different biographic variables. The following findings were derived:

- Learners who were taught in English were more positive in the scrutiny of their teacher's teaching methods for promoting creative thinking than learners taught in Afrikaans (*cf.* Table 5.16) (*cf.* 5.4).
- Female participants were less positive than their male counterparts regarding the teacher's use of teaching methods to nurture creative thinking (*cf.* Table 5.17) (*cf.* 5.6.2).
- Private School teachers nurture learner originality best and Township Schools do not foster flexible thinking as well as Private Schools do (*cf.* Table 5.18) (*cf.* 5.4). Private Schools also nurture flexibility better than Ex-Model C Schools (*cf.* Table 5.20).
- Findings suggest that Black participants appeared to be more critical and negative in their assessment of their Social Sciences teacher's ability to nurture flexibility than their Asian/Indian/Coloured counterparts

were. The White participants were more critical and negative in their assessment of the Social Sciences teachers' teaching strategies than their Black counterparts (*cf.* Table 5.22).

The analysis and interpretation of the qualitative section of the study, namely the teacher interview responses followed (*cf.* 5.7). From the content analysis, major patterns and themes were extracted, analysed and interpreted. To validate the themes further, literature was consulted and referenced to substantiate arguments (*cf.* 5.7). The teachers reported that they did not use the resources due to financial and logistical issues that prevent them from using them properly (*cf.* 5.7.4.1). Asked why they make more use of the chalkboard, maps and textbooks, more financial and logistical reasons were given: these resources are readily available (*cf.* 5.7.3). The content-driven nature of the subject promotes the use of basic activities and these basic activities were being prescribed on the systemic level (*cf.* 5.7.5.1, 5.7.5.2). The under-use of higher-order activities was attributed to incompetence, logistical and systemic issues (*cf.* 5.7.6). Teachers mainly focus on standard-based assessment in order to compare learner understanding, as well as carrying out curriculum prescriptions (*cf.* 5.7.7.1, 5.7.7.2). It was also noted that a few teachers believe that rote learning is easier for learners (*cf.* 5.7.9.3), some also lack the ability to construct quality test and exam papers (*cf.* 5.7.9.2) and contend that the curriculum expects rote learning to be carried out (*cf.* 5.7.9.1). Findings emphasized that teachers believe it to be easier to maintain discipline and attention when using direct methods and that learners understand information better if these methods are used. Their reasons why the other methods are under-used also linked with discipline issues, the amount of time it takes to use these methods, as well as financial burdens (*cf.* 5.7.11.1).

The next section will report the major findings from the literature review that was conducted at the beginning of the study.

6.3 FINDINGS FROM THE LITERATURE REVIEW

The literature review focused on two primary concepts, the first being creativity and the second being teaching methods. The section on creativity will be discussed first.

A major finding from the literature revealed that creativity research began formally in 1950, with J.P. Guilford's address to the American Psychological Association which helped to popularize the topic and centre attention on a scientific approach to conceptualizing creativity (Ryhammar & Brodin, 1999:259) (*cf.* 2.2). Other major researchers who started working in the field of creativity were Genrikh Altshuller (Sheng & Kok-Soo, 2010:852) (*cf.* 2.2), Edward de Bono (1985:300) (*cf.* 2.2) and Alex Osborn (Monyai, 2006:120-121) (*cf.* 2.2).

Following the historical development of creativity research, further findings emerged which placed creativity within the broader framework of cognition (*cf.* 2.3). Creativity can be regarded as a cognitive action, which is placed on Level 2, implying moderate complexity (Dunlosky & Bjork, 2008:31) (*cf.* 2.3). It is closely linked with the other Level 2 cognitive action of critical thinking (Barnes, 2005:5-13; Bataineh & Zghoul, 2006:33-50; Facione, 2009:2-3; Halx & Reybold, 2005:293-315; Seng & Kong, 2006:51-74) (*cf.* 2.3).

The next major finding related to Bloom's Taxonomy and the Revised Taxonomy for thinking, and the place of creativity in the Taxonomy. Bloom's Taxonomy is a hierarchy for thinking which is placed on different levels. The lower-order thinking skills begin with knowledge, comprehension and application, and the higher-order skills range from analysis; evaluation and synthesis (Bloom, 1956:8) (*cf.* 2.3.1). An important finding linked creative thinking with the highest level of Bloom's Taxonomy: synthesis. A major factor influencing the nurturing of creative thinking in the classroom was that, in order to promote the synthesis skill, the basic skills that preceding synthesis also need to be nurtured in the classroom (Orlich *et al.*, 2004:20) (*cf.* 2.3.1).

Following the discussion on Bloom, further findings were revealed regarding lateral and divergent thinking, involving drawing on ideas from different fields of investigation to reach deeper understanding (Guilford, 1958:14) (*cf.*

2.3.1.1). Lateral thinking was revealed to be an indirect and creative approach to problem solving, which was developed by Edward de Bono (1970:300) (*cf.* 2.3.1.1).

Various beliefs regarding the origin of creativity came to the fore, stating that creativity can come from grace, accident, association or cognitive actions (Henry, 1991:12) (*cf.* 2.4.1). The researcher concluded that, for this study, creativity would be regarded as originating from cognitive actions.

The literature study also highlighted various trends in creative abilities and potentials. These trends include creative enhancement, education, problem solving, social influences and personality (Runco, 2003:317) (*cf.* 2.4.2). This particular study links with two of these trends, those of creative enhancement and education.

The core tenets of creative thinking were also researched, as these would form the basis for the construction of the questionnaire. These tenets were based on the work of both Guilford (1966:186) and Torrance (1977:14) (*cf.* 2.4.3.1), and include the following tenets: namely **fluency**, **flexibility**, **elaboration** and **originality**.

From these tenets it was revealed that creative thinking is multi-dimensional, as it involves adding deeper insight into responses, being able to generate many ideas, all different from one another, as well as being unique and novel (Torrance, 1977:14) (*cf.* 2.4.3.2).

Another important finding that had implications for the study, was the specific form that creative thinking takes on (*cf.* 2.4.4). Literature pointed out that creative thinking is mostly associated with the realms of art and literature, but those are not the only forms it can take on (Sullivan & Harper, 2009:20) (*cf.* 2.4.4.1). Creativity is prevalent in academic work (*cf.* 2.4.4.2), in industry (*cf.* 2.4.4.3) and intellectually (*cf.* 2.4.4.4). What is important for the study is that creativity will take the form of academic creativity, as the research will take place at schools where creative thinking should be nurtured in an academic context.

Creativity has also been revealed to be a skill that any person can acquire with sufficient practice (Kurtzberg, 2005:52) (*cf.* 2.4.4.5). What became clear

was that creative thinking can flourish in group dynamics as well, which has implications for teaching. There is evidence that, the generation of new and novel ideas is more likely to occur in groups (Kurtzberg, 2005:53) (*cf.* 2.4.4.6). Also of paramount importance is the effect of diversity on creativity. This is evident in the variety of opinions and perspectives being brought forward from the different ethnic groups and genders (*cf.* 2.4.4.7).

A very important finding with regard to creativity was the four p's of creativity, of the facet of creativity, namely place, person, product and process (Rhodes, 1961:305-311) (*cf.* 2.5). The essence of this is that creative thinking can take place in a certain person, which the researcher identified to be the learner at the schools. Creative thinking also takes place within a specific place or environment, which the researcher identified as the Social Sciences classroom. The creative process was linked with the idea of cognitive actions being nurtured by the teacher and the creative product was linked with the learners' responses, answers and ideas being generated.

It was also very important to understand the barriers to developing creative thinking, and the studied literature pointed out many of these, the first of which was the nature/nurture debate involving creativity, which some researchers acknowledge as being prevalent only in intelligent people. However, Torrance's (1977:15) (*cf.* 2.6.1) work on the threshold hypothesis states that intelligence appears to be an essential, but not a sufficient circumstance for creative thinking. This type of belief that creative thinking is visible only in intelligent children could stifle creative development in the classroom.

Another barrier that was explored was how motivation or the lack thereof could negatively affect creative development (McCoy & Evans, 2002:409) (*cf.* 2.6.2). It was noted that only intrinsic motivation can help promote creative thinking, as there is a direct link between the motivational orientation brought to a task by a learner and the likelihood of his/her being creative at the task.

A major finding regarding barriers to creative development relates to creative thinking across cultures (*cf.* 2.6.4). It has been revealed that, in a multi-cultural nation like the South African, teachers are faced with diverse cultural backgrounds in their classrooms and even the teacher's culture can affect the

nurturing of creative thinking. Western culture tends to view creative thinking as emanating mainly from a person or process that produces appropriate or novel ideas or products (Mayer, 1996:151-161) (*cf.* 2.6.4). However, other cultures do not share similar views regarding creative thinking (Lubart, 1999:342).

Another issue to be looked at is the notion of gender differences and creative thinking (*cf.* 2.6.5). Research has pointed out that there are gender differences regarding creative thinking, especially due to historical, masculine-dominated areas in which only men were allowed to excel (Reiss, 1999:699). However, that being said: on a biological level it is evident that there are no differences between the creative thinking of men and women, only environmental factors that may stifle one gender (Baer, 2005).

Essential to the nurturing of creative thinking is the classroom climate being created by the teacher. This classroom climate has a tremendous impact on the nurturing of creative thinking (*cf.* 2.6.7). A climate, which appears to be the most desirable, is one, which fosters psychological safety and intellectual freedom within a structure where individuals respect one another as persons of unconditional worth (Hennessey, 2004:35).

Further findings revealed that, within the current school curriculum, creative thinking can be linked with specific learning outcomes and assessment standards in the Social Sciences classroom (*cf.* 2.8).

Attention was also focused on teaching methods and how the choice of methods can affect the nurturing of creative thinking. The first major finding in the literature related to the systemic issues that can influence schools, such as the financial predicament that specific schools are faced with. It has been established that poorer schools cannot afford resources, which has serious implications for nurturing creative thinking (Bisschoff & Koebe, 2005:156) (*cf.* 3.1).

Another issue was the experience a teacher has and how that can affect creative thinking being nurtured in the classroom. It was found that inexperienced teachers might not know how to implement more virile teaching

methods, which can lead to more creative teaching (Greenberg *et al.*, 2004) (*cf.* 3.1).

A major finding revealed that instruction can be subdivided into many different teaching methods, namely direct, indirect, independent and interactive methods (Killen, 2007:127) (*cf.* 3.2). All these methods have underlying strategies that can be implemented in the classroom, and all these methods have specific teaching styles associated with them, such as transmission and reception, and facilitation styles ((Burden & Byrd, 2003:120; Borich, 2003:94, Ognibene, 2007:24-27; Sessoms, 2008:38) (*cf.* 3.3-3.6).

Important research was undertaken to establish the influence of epistemological approaches to knowledge acquisition and how they can affect teaching and learning (*cf.* 3.3.2; 3.4.2; 3.5.2; 3.6.2; 3.7.2). It was revealed that teachers might hold different epistemological beliefs regarding how their learners learn. A realist epistemology purports that learners are passive recipients of a pre-established knowledge base (Schraw & Olafson, 2003:180). Realists also emphasize the role of deliberate practice (systematic daily practice under the tutelage of an expert). Other epistemological beliefs centre on relativist approaches. A relativist assumes that each learner constructs a unique knowledge base that is different but equal to that of other learners (Cobern, 2000:219). Finally, a contextualist approach supports the social construction of knowledge (Shraw & Olafson, 2003:184). The literature highlighted the fact that these beliefs can have a tremendous impact on a teacher's choice of teaching strategies, which will ultimately nurture or hamper the nurturing of creative thinking.

The specific teaching methods that help to foster creative thinking are indirect and interactive instruction, as well as experiential learning. Their resource-based nature brings depth to the learning experience (Borich, 2007:13) (*cf.* 3.4.3).

The last finding presented specific resources or teaching / learning support material that can be implemented in the Social Sciences classroom. The specific use of resources can be linked with the notion of creative elaboration, as resources give deeper insight and can enrich learning (Kincheloe, 2001:12)

(cf. 3.9). In the context of the Social Sciences, political cartoons and photographs were highlighted as important for nurturing creative thinking (Bickford, 2011:65; Shoob & Stout, 2008:73) (cf. 3.9.1, 3.9.2)

The next section will discuss the pertinent findings that were revealed from the empirical research.

6.4 FINDINGS FROM THE EMPIRICAL RESEARCH

In reporting the finding from the empirical, the researcher reports on the combined findings that were derived with the quantitative and qualitative study. The qualitative findings explained the quantitative findings based on the data obtained with the questionnaire that determined the learners' perceptions regarding the nurturing of creative thinking in their Social Sciences classrooms.

The quantitative data pertaining to the nurturing of **elaboration** indicated an under-use of; *inter alia*, political cartoons and photographs in the Social Sciences classroom (cf. Table 5.10), and a heavy reliance on the use of the chalkboard, maps, and textbooks (cf. Table 5.10). The reasons for the responses were attributed to financial and logistical reasons, avoiding the use of certain resources as they create controversy in the classroom (cf. 5.7.4.2), and teacher being incompetent to use particular resources (cf. 5.7.4.3).

The quantitative data pertaining to the nurturing of **fluency** indicated an under-use of problem solving, evaluating and summarizing when setting up activities in the Social Sciences classroom (cf. Table 5.11) and a heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information in activities (cf. Table 5.11). The reasons cited for the aforementioned by the teachers in the interview were: the content-driven nature of the Social Sciences learning area promotes the use of basic activities (cf. 5.7.5.1), and the fact that there are a number of prescribed basic activities on the systemic level (cf. 5.7.5.2) which teachers need to adhere to.

According to the interview data, the under-use of problem solving, evaluating and summarizing could be attributed to the incompetence of teachers, as well

as logistical and systemic issues influencing the use of higher-order activities (cf. 5.7.6)

Regarding the nurturing of **flexibility**, the data indicated the use of similar activities for all learners in the Social Sciences classroom (cf. Table 5.12). In order to establish the reasons for this trend during the teaching of Social Sciences, the interview responses highlighted the following themes as possible reasons for teachers issuing similar activities to all learners in the class: teachers focus on a teacher-centred approach to teaching and emphasize norm-referenced assessment in order to compare learner understanding (cf. 5.7.7.1), and curriculum prescriptions require that learners do similar activities (cf. 5.7.7.2). Classroom size and time constraints that create logistical problems in accommodating different learner needs (cf. 5.7.8.1) were also cited as possible reasons for having learners do similar activities.

The quantitative data pertaining to the nurturing of **originality** indicated that the Social Sciences learners' answers should correspond exactly with that of the textbook, (cf. Table 5.13), which ultimately hampers their originality. The interview responses highlighted the following as possible reasons for why teachers expect learners' answers to correspond exactly with those of the textbook: the curriculum stipulates that rote learning should take place (cf. 5.7.9.1), there appears to be a perceived lack of effort among teachers in setting up quality exam and test papers (cf. 5.7.9.2), and teachers tend to believe that rote learning is easier for learners (cf. 5.7.9.3).

The learner perceptions regarding the teachers' choice of teaching methods indicated that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information (cf. Table 5.14). It appears that mind maps, essays, group work, role play, field trips and debates (indirect, independent, interactive and experiential learning), are not used very frequently (cf. Table 5.14).

The interview responses highlighted the following themes as possible reasons why direct instruction is mainly used in the teaching of Social Sciences: teachers appear to find it easier to maintain discipline and attention when

using direct methods, which leads to better learner understanding (*cf.* 5.7.10.1, 5.7.11.1).

The next subsection will combine data sets relating to the finding that Private School teachers nurture learner originality the most.

Private School teachers nurture learner originality the most (*cf.* Table 5.19), as Private Schools seemingly create open classroom climates that foster originality (*cf.* 5.7.12.1).

Afrikaans learners were more negative regarding their Social Sciences teacher's frequent use of teaching methods and strategies to nurture creative thinking compared to those from English schools (*cf.* Table 5.17). The Afrikaans culture seems to be viewed as restrictive and traditional (*cf.* 5.7.13.1), and certain controversial historical issues prevent Afrikaans teachers from teaching certain content fully so that creative thinking is nurtured (*cf.* 5.7.13.2).

Private Schools outperform Township Schools and Ex-Model C Schools when it comes to nurturing creative thinking, because Private Schools have better finances at their disposal to obtain resources and create an environment that nurtures creative thinking(*cf.* 5.7.14.1), and set higher standards for learners (*cf.* 5.7.14.2).

The next section discusses the findings of this study in relation to the aim and objectives set out in the beginning of the study.

6.5 FINDINGS IN RELATION TO THE AIM AND OBJECTIVES OF THE STUDY

The main aim of this study was to identify the extent to which teachers nurture creative thinking in the Grade 9 Social Sciences classroom through the choice of teaching methods. The study aimed at obtaining information to achieve the overall aim and objectives identified at the onset of the study (*cf.* 1.3). The researcher endeavours to revisit the aim and objectives of the study in order to ascertain whether they have been achieved.

Objective 1: Determining what creative thinking in the Grade 9 Social Sciences classroom entails

This objective was achieved through a literature review that highlighted a number of aspects. It was necessary to achieve this objective prior to any of the other objectives, as the achievement of this objective determined the focus of the study and provided the framework for the compilation of the questionnaire.

This study predominately made use of Amabile's (1996:2) and Sternberg's (2000:31) and Amabile's (1996:2) definition of creative thinking: "*Creative thinking is the process of generating original or new thoughts, designs or products.*" For the purpose of this study, the researcher regards creative thinking as linked to the process of "synthesis" according to Bloom (1956:8) (*cf.* 2.3). Creative thinking furthermore involves the nurturing of the four facets of creative thinking, according to Torrance (1977:14) (*cf.* 2.4.3.2), namely creative elaboration, creative fluency, creative flexibility and creative originality.

Objective 2: Analysing which teaching methods, strategies and resources are best suited to nurture creative thinking in the Grade 9 Social Sciences classrooms

This particular objective was achieved through an extensive literature study, in which different instructional styles were identified (*cf.* 3.2). Of these styles, five main teaching methods were identified, namely direct, indirect, independent a interactive and experiential methods and their related strategies (Borich, 2003:94; Burden & Byrd, 2003:120; Kim, 2005:8; Ognibene, 2007:24-27; Sessoms, 2008:88; Stavenga de Jong *et al.*, 2006:169) (*cf.* 3.3-3.7).

The literature pointed out clearly that some methods are better suited for the nurturing of higher-order thinking and creative thinking than others (Borich, 2007:12) (*cf.* 3.4). The direct instruction method was found to be the least likely to stimulate creative thinking. All the other methods, indirect (*cf.* 3.4), independent (*cf.* 3.5) and especially interactive instruction (*cf.* 3.6), as well as experiential learning (*cf.* 3.7), were found to stimulate creative thinking in the classroom to varying degrees. Strategies linked to the aforementioned

methods that were indicated as very effective for nurturing creative thinking were: problem solving (Morrison *et al.*, 2011:312) (*cf.* 3.8.4), case studies (Yin, 2009:37) (*cf.* 3.8.5), mind maps (Novak & Cañas, 2006:56) (*cf.* 3.8.6), research projects (Freiberg, 2002:56) (*cf.* 3.3.3), essays (Warburton, 2006:34) (*cf.* 3.8.9), cooperative group work (Monyai, 2006:124-129) (*cf.* 3.8.11), role-play (Fogg, 2011:13) (*cf.* 3.8.12) and field trips (Killen, 2007:50) (*cf.* 3.8.13) and questioning (Birdi, 2005:102-111) (*cf.* 3.8.15).

Specific resources that can nurture creative thinking in the Grade 9 Social Sciences classroom were identified, namely political cartoons Bickford, 2011:65-80) (*cf.* 3.9.1), maps (Shoob & Stout, 2008:84-87) (*cf.* 3.9.3) and photographs Van Rooyen & Van der Merwe, 2008:243-250) (*cf.* 3.9.2).

Objective 3: Examining the learners' perceptions regarding the teachers' use of teaching methods, strategies and resources when teaching Grade 9 Social Sciences

This objective was achieved through a quantitative empirical study, by issuing a questionnaire to Grade 9 Social Sciences learners, which asked them about the teacher's choice of teaching methods, strategies and resources.

The findings from the questionnaire points out overwhelmingly that the learners perceive their Social Sciences teachers mainly making use of direct instructional strategies, such as lecturing, drilling of information and repeating information (*cf.* Table 5.14) (*cf.* 5.4). Under-used strategies include essays, group work, role-play, field trips and debates. All these under-used strategies fall under indirect and interactive instructional methods (*cf.* 3.4; 3.6). With regard to resources, teacher appear to mainly use the chalkboard, textbooks and maps, while not utilizing political cartoons and photographs (*cf.* Table 5.10).

The quantitative data pertaining to the nurturing of elaboration indicated an under-use of specific resources, including political cartoons and photographs in the Social Sciences classroom (*cf.* Table 5.10) and a heavy reliance on the use of the chalkboard, maps and textbooks (*cf.* Table 5.10), which concur with the quantitative findings. The interview participants cited various reasons as to why these resources are under-used, namely that financial and logistical

reasons create the under-use of resources (*cf.* 5.7.4.1), the particular resources create controversy in the classroom (*cf.* 5.7.4.2) and the teachers show incompetence in the use of particular resources (*cf.* 5.7.4.3). The heavy reliance on the use of the chalkboard, maps and textbooks could be attributed to financial and logistical reasons for use of basic resources, as they are the only readily available resources (*cf.* 5.7.3).

Objective 4: Gauging teachers' perceptions regarding the nurturing of creative thinking in Grade9 Social Sciences classrooms

This particular objective was achieved through a qualitative empirical study in which teachers were interviewed, where the question was asked: How would you define the term "creative thinking"?

All six of the interview participants defined creative thinking in terms of **originality**. Participants clearly linked originality with uniqueness, clearly showing understanding. The term "thinking outside the box" is clearly seen as being stated by three of the participants. This phrase means to think unconventionally or from a new perspective. This phrase often refers to novel or original thinking (*cf.* 2.4.3.2). Therefore, these three participants clearly understand the meaning of originality.

Three of the six participants also clearly linked creative thinking with **flexibility**, as evidenced in their statements (*cf.* a.7)(*cf.* c.9) (*cf.* f.7). From the responses, it is clear that the three participants understand what creative thinking is in terms of flexibility, as the keyword "different" is mentioned. The other participant mentioned "broad mind-set", which links with the definition as well.

Another three of the six participants linked creative thinking with **fluency** or the ability to generate ideas. This is evidenced in their statements(*cf.* b.7)(*cf.* d.7)(*cf.* e.9). From the responses, it is evident that the three participants have a good understanding of creative fluency. Terms that link with the literature is "come up with" and "creating new things while thinking".

Interestingly enough, in not one of the participants' definitions of creative thinking was **elaborative thinking** evident. This finding supports the discussion pertaining to objective 3, where elaboration was highlighted as the

creative tenet that appears to be neglected the most. As this particular tenet was one of the least nurtured in the classroom from data obtained in the quantitative section, it could be due to lack of understanding from the teachers of what exactly creative thinking entails, that could lead to underdevelopment of the tenet.

Objective 5: Establishing the influence of biographical variables on the learner responses regarding the nurturing of creative thinking in the Grade 9 Social Sciences classroom

This particular objective was met when the ANOVA was carried out on the biographical variables of the research participants of the quantitative study. An ANOVA was utilized to determine whether differences that occurred between the different biographical variables were statistically significant.

These variables included the language of learning and teaching (*cf.* Table 5.6), the gender of the participants (*cf.* Table 5.7), the type of school of the participants (*cf.* Table 5.8), as well as the ethnic background of the participants (*cf.* Table 5.9).

The ANOVA for the biographic variable “language of learning and teaching” revealed Afrikaans participants were more critical and less positive concerning their teachers’ teaching strategies than the English group, who showed a more positive outlook (*cf.* Table 5.17).

The ANOVA for the biographic variable “gender” revealed that the female participants had a far more critical, negative view of their teachers’ practices, and were more critical and not so positive of their teachers’ teaching strategies being utilized within the Social Sciences classroom (*cf.* Table 5.18).

The ANOVA for the biographical variable “type of school” revealed statistically significant differences in the responses of the various schools, identified as Ex-Model C, Private and Township Schools (*cf.* Table 5.19). In contrast to the previous biographic variables, which only comprised two groups (male/female; Afrikaans/English), three groupings were made for the type of school. This enabled the researcher to follow up the ANOVA with a *post hoc* test, Tukey’s HSD (Honestly Significant Difference) tests, if statistically significant differences were detected for the impact of the type of school on the nurturing

of creative thinking. The Tukey HSD test for the type of school revealed that the Private School learners appeared to be more positive regarding their Social Sciences teacher's ability to nurture flexibility; as opposed to the Ex-Model C Schools (*cf.* Table 5.20). In addition, the Private School learners appeared to be more positive regarding their Social Sciences teacher's ability to nurture originality, as opposed to the Township Schools (*cf.* Table 5.20).

The ANOVA for the biographical variable "ethnic group" revealed statistically significant differences in the responses of the various ethnic groups, identified as the White, Black and Asian/Coloured/Indian ethnic groups (*cf.* Table 5.21). Three groupings were identified for ethnic group, which enabled the researcher to follow up the ANOVA with a *post hoc* test, Tukey's HSD test, if statistically significant differences were detected among the means of the ethnic groupings. The Tukey HSD test revealed that Black participants appeared to be more critical and negative in their assessment of the Social Sciences teacher's efforts to nurture flexibility than their Asian/Indian/Coloured counterparts (*cf.* Table 5.22). The White participants were apparently more critical and negative in their assessment of the Social Sciences teacher's teaching strategies than their Black counterparts (*cf.* Table 5.22).

Based on the aforementioned discussion, which indicates that the researcher achieved the objectives that were set at the onset of the study, the researcher argues that the overall aim with the study was also achieved. The data revealed that Social Sciences teachers could provide more opportunities for the development of critical thinking by including opportunities for indirect, independent, interactive and experiential learning during teaching. Furthermore, the use of resources such as political cartoons and photographs can promote creative elaboration during teaching and learning.

The next section will look at the recommendations regarding the problems identified for the nurturing of creative thinking in the Social Sciences classrooms.

6.6 RECOMMENDATIONS

In light of the empirical findings and literature review findings, the researcher recommends the following in order to enhance creative thinking among Grade

9 Social Sciences learners. The researcher wishes to point out that the assistance of the Department of Education in collaboration with Higher Education Institutions involved in teacher training, should join hands in guiding teachers in adopting teaching approaches that would nurture creative thinking.

The first and foremost recommendation that the researcher wishes to make, is that educators be trained to fully understand the meaning of creative thinking in an academic context, how it should best be nurtured and why it is important that it be nurtured.

In the following sections, recommendations will be linked to the major findings of the study in relation the tenets of creative thinking and the teaching methods, strategies and resources applicable to the nurturing of creative thinking.

6.6.1 Recommendations: fluency

The specific problems that were revealed by the data pertaining to creative fluency include:

- A heavy reliance on the factual recall of knowledge to motivate answers to questions and the understanding of information (*cf.* Table 5.11)
- An under-use of problem solving, evaluating and summarizing (*cf.* Table 5.11)

Specific recommendations to address these problems include:

- Despite the content-driven nature of Social Sciences as a subject, teachers need to be encouraged and guided to take initiative and structure activities and tasks that address a variety of cognitive skills (Bloom, 1956:8) (*cf.* 2.3).
- A stronger awareness should be created among teachers regarding the merits of teaching strategies that focus on learner involvement in the construction of knowledge (Borich, 2007:12, Kim, 2008:8) (*cf.* 3.4-3.6).

6.6.2 Recommendations: flexibility

The specific problems that were revealed by the data pertaining to creative flexibility include:

- Similar activities are given to all learners (*cf.* Table 5.12).
- There is a perceived lack of accommodation of gifted learners or learners with barriers (*cf.* Table 5.12).

Specific recommendations to address these problems include:

- Teachers should regularly reflect on the quality of the activities that they structure, to ensure that the activities do not rely solely on the application of lower-order thinking skills (Bloom, 1956:8) (*cf.* 2.3). It is crucial that the Department of Education sets a high standard regarding the curriculum being implemented in public schools (Smit & Oosthuizen, 2011:55-73) (*cf.* 3.1), which could lead to an improved quality in curriculum implementation with a stronger focus on the nurturing of thinking skills across all subject fields.
- The use of De Bono's (1985:12) (*cf.* 3.8.15) Six Thinking Hats could help facilitate the nurturing of flexible thinking in the Social Sciences classroom (Torrance, 1977:16) (*cf.* 2.4.3.2), in order to accommodate gifted and weaker learners (Hennessey, 2004:35) (*cf.* 2.6.6). The researcher suggests that teachers receive training and assistance in the implementation of this strategy.

6.6.3 Recommendations: elaboration

The specific problems that were revealed by the data pertaining to creative elaboration and the use of resources include:

- Teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences (*cf.* Table 5.10).
- The use of political cartoons and photographs is indicated as underused in the Social Sciences classroom (*cf.* Table 5.10).

Specific recommendations to address these problems include:

- Social Sciences teachers need to focus their efforts as best they can to make use of appropriate and varied teaching resources (Kincheloe, 2001:13-16) (*cf.* 3.9) such as political cartoons (*cf.* 3.9.1), photographs (*cf.* 3.9.2) and maps (*cf.* 3.9.3) to help nurture creative elaboration (Torrance,

1977:16) (*cf.* 2.4.3.2), instead of only relying on certain resources. In addition, the Department of Education could consider subsidizing the acquisition of more technologically advanced resources (Bisschoff & Koebe, 2005:156-163) (*cf.* 3.1) such as audio-visual media (*cf.* 3.9.7) and information communication technology (*cf.* 3.9.8). The perhaps, elaborative thinking (and ultimately creative thinking) will be nurtured.

- Specifically designed in-service training facilitated by the Department of Education dealing with the implementation of political cartoons (*cf.* 3.9.1), photographs (*cf.* 3.9.2) and maps (*cf.* 3.9.3) could alleviate their under-use in the Social Sciences classroom. In addition, training in the use of audio-visual media and information communication technology will also be needed to assist teachers in implementing these resources effectively.

6.6.4 Recommendations: originality

The specific problems that were revealed by the data pertaining to creative originality include:

- Learner answers should correspond with those of the textbook (*cf.* Table 5.13).

Specific recommendations to address these problems include:

- Increased awareness of the demerits of only testing on a low cognitive level that mainly focuses on recall should be instilled among teachers. Testing on such a lower-order level will not foster the development of originality (Torrance, 1977:17) (*cf.* 2.4.3.2). The solution to this issue is that teachers must begin to understand the importance of allowing learners to think for themselves and to answer in their own words (McCoy & Evans, 2002:413).

6.6.5 Recommendations: teaching strategies

The specific problems that were revealed by the data pertaining to the teaching strategies used by Social Sciences teachers include:

- Direct instruction mainly being used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information (*cf.* Table 5.14)

- Specific teaching strategies that are under-used, such as mind maps, essays, group work, role play, field trips and debates (*cf.* Table 5.14)

Specific recommendations to address these problems include:

- Teachers need to be made aware of the importance and significance of nurturing creative thinking through their choice of teaching strategies (Killen, 2007:127) (*cf.* 3.2) in the Grade 9 Social Sciences class. Teachers also need to be made aware of the potential harm they are causing by solely making use of direct (Arends, 2004:293) (*cf.* 3.3) instructional strategies such as lecturing (*cf.* 3.8.1), drill-and-practice (*cf.* 3.8.2) and repetition of information (*cf.* 3.8.2). This awareness could be facilitated by the Department of Education in collaboration with Higher Education Institutions involved in teacher training, by means of in-service training programmes.
- Teachers also need to be made aware of the different teaching strategies that either can negatively or positively affect the nurturing of creative thinking in the Grade 9 Social Sciences classroom. Indirect (Borich, 2007:12) (*cf.* 3.4), independent (Philpott, 2009:38,47) (*cf.* 3.5), interactive (Kramer, 2006:104) (*cf.* 3.6) and experiential teaching strategies (Merriam *et al.*, 2007:155) (*cf.* 3.7) are most desirable for the nurturing of creative thinking. Again, a similar intervention could be run by the Department of Education to assist and train Social Sciences teachers in the use of mind maps (*cf.* 3.8.6), essays (*cf.* 3.8.9), group work (*cf.* 3.8.11), role plays (*cf.* 3.8.12), field trips (*cf.* 3.8.13) and debates (*cf.* 3.8.14). Universities and other Higher Education institutions need to incorporate this issue of cognitive education into their curricula, to prepare learner teachers on how to structure teaching to purposefully developing creative thinking skills.

Following the above-mentioned recommendations, the researcher wishes to report on the limitations of the study.

6.7 LIMITATIONS OF THE STUDY

A number of limitations were identified for the research. Bearing these limitations in mind, the researcher acknowledges that only tentative conclusions regarding the choice of teaching methods that can nurture the

nurturing of creative thinking in the Grade 9 Social Sciences classroom can be formulated. The researcher identified the following limitations:

- The researcher focused only on the creative thinking abilities of Grade 9 learners, and not on the other two grades in the Senior Phase (Grades 7 & 8). This limits the study, as deeper insights could be learned from studying the entire Phase.
- The current sample was bound to only one school district (D7) and therefore the results of this study cannot be generalized to other learners from other schools in other districts.
- The researcher used convenient sampling due to time and logistical constraints, and the researcher acknowledges that bias might have been built into the sample and that results cannot be generalized.
- The researcher also focused on only one subject, namely Social Sciences. This limits the generalizability of the findings with regard to other school subjects when it comes to the nurturing of creative thinking.
- The researcher acknowledges that the use of observations would have provided first-hand evidence of the classroom practices of teachers instead of relying on learner perceptions.
- Further research related to the nurturing of creative thinking also needs to examine the assessment practices of teachers to establish to what extent assessment nurtures creative thinking.
- Further exploration in order to determine the influence of biographical variables on the responses of participants related to creative thinking, would enhance the internal validity of a study on creative thinking.

Following the above-mentioned limitations, a few suggestions for further research will be proposed in the subsequent section.

6.8 SUGGESTIONS FOR FURTHER RESEARCH

This study has made the researcher aware of the importance of nurturing creative thinking, as it is essential that these basic skills are taught so that

higher-order thinking can take place. The following suggestions are made for further research:

- Using more participants in research can help to generalize the findings; therefore the research should be conducted at many other schools in different districts. This study made sole use of schools within the D7 district.
- This same study can be done in other Grades, such as 7 and 8 classrooms in the same school to investigate any differences picked up in the different Grades. This will help to understand further whether creative thinking is nurtured earlier on and whether thinking skills taught in the previous grade are being carried over.
- The same study can be carried out in different subjects as well, to understand if the issue of creative development is a problem across the entire range of subjects offered at school level.
- Further research needs to be conducted on how to address the problem of teachers mainly choosing direct instructional strategies when teaching. A programme needs to be developed that can assist teachers when teaching specific creative thinking skills, as well as how to assess these skills.
- Interpretations of what creative thinking entails to teachers from different cultures could enrich and further explain the findings of the present study.

6.9 CONTRIBUTION OF THE STUDY

Many international studies have been done regarding stimulating or nurturing creative thinking in general in the classroom. This study highlighted possible problem areas in relation to the nurturing of creative thinking in Grade 9 Social Science, and therefore paves the way for further research into this field, with the aim of developing a programme that could lead to the nurturing of creative thinking in the Grade 9 Social Sciences classrooms in South Africa.

The findings of this study could be beneficial to many parties, including teachers. Teachers could be made aware of how to alter their teaching practices in order to improve the nurturing of creative thinking. Learners might

also benefit, as their creative thinking could be enhanced, if teachers resort to different classroom practices that purposefully aim to nurture creative thinking.

6.10 CONCLUSIONS

Creative thinking is of the utmost importance in education; as it has been identified that learners need to become creative thinkers as indicate in the Critical Cross Field Outcomes set out in the National Curriculum Statements.

This study set out to identify to what extent creative thinking is being nurtured in the Grade 9 Social Sciences classroom at the various research sites. Although the results can only be regarded as preliminary, they are disconcerting. The researcher argues that an educational system should train learners to become independent thinkers, and should not end up creating individuals who readily conform to prevailing thought, taking a reactive rather than a proactive approach to problem solving and would rather follow than lead.

Social Sciences teaching needs to be revitalized towards helping the learner to acquire knowledge and skills in an interactive environment. The researcher therefore argues that the teaching of Social Sciences must implement strategies that promote creative thinking, aesthetics and critical perspectives, and allow learners to describe relationships between past and present, to comprehend changes taking place in the world. I order to achieve this, a strong focus on cognitive education in the classroom is vital if the learners we are teaching ought to become creative in their work.

REFERENCES

- Ageyev, V.S. 2003. Vygotsky in the mirror of cultural interpretations. (*In* Kozulin, A., Gindis, B., Ageyev, V.S. & Miller, S.M., eds. 2003. Vygotsky's educational theory in cultural context. Cambridge: Cambridge University Press. p. 432-449).
- Amabile, T.M. 1996. Creativity in context. Harvard: Westview Press.
- Amabile, T.M. 1999. Growing up creative: nurturing a lifetime of creativity. 2nd ed. Buffalo, N.Y.: Creative Education Foundation Press.
- Anderson, L.W. & Krathwohl, D.R. 2001. A taxonomy for learning, teaching, and assessing: a revision of Bloom's taxonomy of educational objectives. New York: Longmans.
- Arends, R.I. 2004. Learning to teach. 6th ed. Boston: McGraw-Hill.
- Arends, R.I. 2009. Learning to teach. 8th ed. Boston: McGraw-Hill.
- Audi, R., ed. 2001. Cambridge dictionary of philosophy. Cambridge: Cambridge University Press.
- Ayisi, E.O. 1992. An introduction to the study of African culture. Nairobi: East African Educational Publishers.
- Babbie, E. & Mouton, J. 2001. The practice of social research. New York: Oxford University Press.
- Baer, J. 1999. Gender differences. (*In* Runco, M.A. & Pritzker, S., eds. Encyclopaedia of creativity, v. 1. San Diego: Academic Press. p. 753-758).
- Baer, J. 2005. Gender and creativity. (Paper presented at the Annual Meeting of the American Psychological Association, Washington, D.C., 18-21 August.)
- Bandura, A. 1997. Self-efficacy: the exercise of control. New York: Freeman.
- Barnes, C.A. 2005. Critical thinking revisited: past, present and future. *New directions for community colleges*, 130:5-13.

- Bataineh, R.F. & Zghoul, L.H. 2006. Jordanian TEFL graduate students' use of critical thinking skills (as measured by the Cornell critical thinking test, level Z). *The international journal of bilingual education and bilingualism*, 9:33-50.
- Bennett, S. & Kalish, N. 2006. The case against homework: how homework is hurting our children and what we can do about it. New York: Crown Publishers.
- Beauchamp, G. & Parkinson, J. 2005. Beyond the wow factor: developing interactivity with the interactive whiteboard. *School Science Review*, 86(316): 97-103.
- Bickford, J.H. 2011. Examining original political cartoon methodology: concept maps and substitution lists. *Social studies research and practice*, 6(3):65-80.
- Birdi, K.S. 2005. No idea? Evaluating the effectiveness of creativity training. *Journal of European industrial training*, 29(2):102 – 111.
- Bisschoff, T. & Koebe, C. 2005. School choice: challenge to Sharpeville public school principals. *South African journal of education*, 25(30):156-163.
- Bligh, D.A. 2000. What's the use of lectures? San Francisco, Calif.: Jossey-Bass.
- Bloom, B.S. 1956. Taxonomy of educational objectives. Handbook 1: Cognitive domain. New York: McKay.
- Borich, G.D. 2003. Observation skills for effective teaching. 4th ed. New York: Merrill Prentice Hall.
- Borich, G.D. 2007. Effective teaching methods: research-based practices. 6th ed. Upper Saddle River, N.J.: Pearson/Merrill Prentice Hall.
- Boyles, N.N. 2004. Constructing meaning through kid-friendly comprehension strategy instruction. Gainesville, Fla.: Maupin House.

- Brown, S. 2008. Measures of shape. Skewness and kurtosis. <http://www/tcs.edu/instruct/sbrown/stat/shape.htm> Date of access: 12 August 2011.
- Bruce, C.D., Ross, J., Flynn, T. & McPherson, R. 2009. Lesson study and demonstration classrooms: examining the effects of two models of teacher professional development. (Study was funded by the Ministry of Education, SAINS initiative).
- Bruner, J.S. 1961. The act of discovery. *Harvard educational review*, 31:21-32.
- Bruner, J.S., Goodnow, J.J. & Austin, G.A. 1967. A study of thinking. New York: Wiley.
- Bunt, B. J. 2009. The extent to which teachers enhance creativity in the history classroom through the choice of teaching methods. North-West University Vaal Triangle Campus: Vanderbijlpark. (Unpublished).
- Burden, P.R. & Byrd, D.M. 2003. Methods for effective teaching. Meeting the needs of all students. 5th ed. London: Pearson Education.
- Byrne, R.M.J. 2005. The rational imagination: how people create alternatives to reality. Cambridge, Mass.: MIT Press.
- Carr, E.H. 2001. What is history? Basingstoke: Palgrave Macmillan.
- Chatel, R.G. 2001. Diagnostic and instructional uses of the cloze procedure. *The NERA journal*, 37:3-6.
- Chiu, M.M. 2004. Adapting teacher interventions to student needs during cooperative learning. *American educational research journal*, 41:365-399.
- Coburn, W.W. 2000. The nature of science and the role of knowledge and belief. *Science and education*, 9:219-246.
- Cohen, L., Manion, L. & Morrison, K. 2007. Research methods in education. 6th ed. New York: Routledge.
- Costa, A.L. 2009. Describing the Habits of Mind. (In Costa, A.L & Kallick, B. eds. Learning and leading with Habits of Mind. 16 essential

- characteristics for success. Victoria: Hawker Brownlow Education. p. 21-23, 97-116).
- Craft, A. 2005. Creativity in schools: tensions and dilemmas. Oxon: Routledge Falmer.
- Creswell, J.W. 2009. Research design: qualitative, quantitative, and mixed methods approaches. 3rd ed. Los Angeles, Calif.: Sage.
- Darby, M. L. 2007. Debate: A teaching-learning strategy for developing competence in communication and critical thinking. *Journal of dental hygiene*, 81(4):78-89.
- De Beer, J. 2010. The teacher as a user of media. (In Conley, L., eds. Becoming a teacher. Cape Town: Heinemann. p.124-142).
- De Bono, E. 1970. Lateral thinking. New York: Harper & Row.
- De Bono, E. 1985. Six thinking hats: an essential approach to business management. Boston, Mass.: Little Brown.
- De Bono, E. 2004. De Bono's thinking course: Powerful tools to transform your thinking. London: BBC books.
- Department of Basic Education. See South Africa. Department of Basic Education.
- Department of Education. See South Africa. Department of Education.
- De Wit, M. 2009. The young child in context. A thematic approach. Perspectives from educational psychology and sociopedagogics. Pretoria: Van Schaik.
- Dembo, M.H. & Seli, H.P. 2004. Students' resistance to change in learning strategies courses. *Journal of developmental education*, 27(3):2-9.
- Duchesne, R. 2011. The uniqueness of Western civilization: studies in critical Social Sciences. Leiden: Brill.
- Dudek, M. 2000. Kindergarten architecture: space for the imagination independence. New York: Spon Press.

- Dunlosky, J. & Bjork, R.A., eds. 2008. Handbook of metamemory and memory. New York: Psychology Press.
- Eakle, A.J. 2007. Museum literacy, art, and space study. (In Lapp, D., Flood, J. Heath, S.B., eds. Handbook of research on teaching literacy through the communicative and visual arts. 2nd ed. Mahwah, N.J.: Erlbaum. P. 177-186).
- Ekvall, G. 1996. Organizational climate for creativity and innovation. *European journal of work and organizational psychology*, 5:105-124.
- Epstein, R.L. 2006. Critical thinking. Belmont, CA.: Wadsworth Thomas.
- Eysenck, H.J. 1995. Genius: the natural history of creativity. Cambridge: Cambridge University Press.
- Facione, P.A. 2009. Critical thinking: what it is and why it counts. *Insight assessment*:2-3.
- Feist, G. & Runco, M.A. 1993. Trends in the creativity literature: an analysis of research in the Journal of creative behaviour (1967-1989). *Creativity research journal*, 6:271-286.
- Ferreira, J.G. 2006. Effective mediation of learning through the use of media and everyday resources. (In Nieman, M.M. & Monyai, R.B., eds. The educator as mediator of learning. Pretoria: Van Schaick. p. 136-158).
- Feuerstein, R., Feuerstein, R.S. & Falik, L.H. 2010. Beyond smarter. Mediated learning and the brain's capacity for change. New York: Teachers College Press.
- Fogg, P. 2001. A history professor engages students by giving them a role in the action. *Chronicle of higher education*, 48(12):12-13.
- Freiberg, H.J. 2002. Essential skills for new teachers. *Educational leadership*, 59(6):56-60.
- Furnham, A. & Yazdanpanahi, T. 1995. Personality differences and group versus individual brainstorming. *Personality and individual differences*, 19:73-80.

- Gardner, H. 1983. *Frames of mind: the theory of multiple intelligences*. New York: Basic Books.
- Glassman, M. 2001. Dewey and Vygotsky: society, experience, and inquiry in educational practice. *Educational researcher*, 30:3-14.
- Glover, D., Miller, D., Averis, D. & Door, V. 2005. The interactive whiteboard: a literature survey. *Technology, Pedagogy and Education*, 2(14): 155-170.
- Goldhaber, D.D. & Brewer, D.J. 2000. Does teacher certification matter? High school teacher certification status and student achievement. *Educational evaluation and policy analysis*, 22(2):129-145.
- Gorn, C. 2006. *Getting students to like history is not impossible*. Maryland: Oxford Publishers.
- Greeff, M. 2005. Information collection: interviewing (In De Vos, A.S., Strydom, H., Fouché, C.B. & Delport, C.S.L., eds. *Research at grass roots*. 3rd ed. Pretoria: Van Schaik. p.286-313.)
- Greenberg, E., Rhodes, D., Ye, X. & Stancavage, F. 2004. Prepared to teach: teacher preparation and student achievement in eighth-grade mathematics. (Paper presented at the Annual Meeting American Institute for Research, San Diego, Calif.).
- Guilford, J.P. 1950. Creativity. *American psychologist*, 5:444-454.
- Guilford, J.P. 1958. Can creativity be developed? *Art education*, 11:3-7; 14-18.
- Guilford, J.P. 1966. Measurement and creativity. *Theory into practice*, 5:186-189.
- Gunter, M.A., Estes, T.H. & Mintz, S.L. 2010. *Instruction: a models approach*. Boston, Mass.: Pearson Education.
- Halx, M.D. & Reybold, L.E. 2005. A pedagogy of force: faculty perspectives of critical thinking capacity in undergraduate students. *The journal of general education*, 54:293-315.

- Hennessey, B.A. 2004. Developing creativity in gifted children: the central importance of motivation and classroom climate. Storrs, CT: The National Research Centre on the Gifted and Talented, University of Connecticut.
- Henning, E., Van Rensburg, W. & Smith, B. 2004. Finding your way in qualitative research. Pretoria: Van Schaik.
- Henry, J. 1991. Creative management. 2nd ed. London: Sage.
- Hua, Z., Yang, J., Coulibaly, S. & Zhang, B. 2006. Integration TRIZ with problem solving tools: a literature review from 1995 to 2006. *International journal of business innovation and research*, 1(1/2):111-128.
- Hung, D.W.L. 1999. Activity, apprenticeship, and epistemological appropriation: Implications from the writing of Michael Polanyi. *Educational psychologist*, 34:193-205.
- Isaksen, S.G, Dorval, K.B. & Treffinger, D.J. 2000. Creative approaches to problem solving: a framework for change. Buffalo: Creative Problem solving Group.
- Isen, A.M., Daubman, K.A. & Nowicki, G.P. 1987. Positive affect facilitates creative problem solving. *Journal of personality and social psychology*, 52(6):1122–1131.
- Jackson, N. 2005. Creativity in history teaching and learning. (In Andress, E. Subject perspectives on creativity in higher education working paper. Portsmouth: University of Portsmouth. p. 1-9.)
- Jeffrey, B. & Craft, A. 2005. Teaching creatively and teaching for creativity: distinctions and relationships. *Educational studies*, 30:77-87.
- Jennings, T. 2005. Investigating creativity: understanding the perspectives of teachers and students. De Kalk, Ill.: Northern Illinois University.
- Johnson, L. 2011. Teaching outside the box. How to grab your students by their brains. San Francisco, Calif.: Jossey-Bass.
- Johnston, P., Woodside-Jiron, H., & Day, J. 2001. Teaching and learning literate epistemologies. *Journal of educational psychology*, 93(1):5-33.

- Joubert, I., Bester, M. & Meyer, E. 2008. Literacy in the Foundation Phase. Pretoria: Van Schaik.
- Joyce, B. & Weil, M. 2000. Models of teaching: tools for teaching. 6th ed. Boston, Mass.: Allyn & Bacon.
- Kahneman, D. & Tversky, A. 2000. Choice, values, frames. New York: Cambridge University Press.
- Kerr, S. 1995. On the folly of rewarding A, while hoping for B. *Academy of management executive*, 9(1):7-14.
- Killen, R. 2007. Teaching strategies for outcomes-based education. 2nd ed. Cape Town: Juta.
- Kim, J.S. 2005. The effects of a constructivist teaching approach on student academic achievement, self-concept, and learning strategies. *Asia Pacific education review*, 6(1):7-19.
- Kincheloe, J.L. 2001. Getting beyond the facts: teaching social studies/Social Sciences in the twenty-first century. New York: Peter Lang Publishing.
- Koenig, R. 2010. Learning for keeps. Teaching the strategies essential for creating independent learners. Alexandria: ASCD.
- Kompridis, N. 2010. So we need something else for reason to mean. *International journal of philosophical studies*, 8(3):271.
- Koon, T.G. 1980. Development of a conceptual model for the creative teaching of social studies in the secondary schools of Liberia. Los Angeles, Calif.: University of California.
- Kozulin, A. 2003. Psychological tools and mediated learning. (In Kozulin, A., Gindis, B., Ageyev, V.S. & Miller, S.M., eds. 2003. Vygotsky's educational theory in cultural context. Cambridge: Cambridge University Press. p. 31-38).
- Kramer, D. 2006. OBE Teaching Toolbox. OBE strategies, tools and techniques for implementing Curriculum 2005. Florida Hills: Vivlia Publishers & Booksellers (Pty) Ltd.

- Kurtzberg, T.R. 2005. Feeling creative, being creative: an empirical study of diversity and creative teams. *Creativity research journal*, 17(1):51-54.
- Leech, N.L., & Barrett, K.C. & Morgan, G.A. 2005. SPSS for intermediate statistics: use and interpretation. 2nd ed. London: Routledge.
- Leedy, P.D. & Ormrod, J.E. 2005. Practical research: planning and design. 8th ed. Upper Saddle River, N.J.: Prentice Hall.
- Levine, J.C. 1996. Personal creativity and classroom teaching style of second-year, inner city teachers. New York: Fordham University.
- Lilly, F.R. 2002. Teaching outside of the box: studying a creative teacher. Montreal: McGill University. (Thesis - PhD).
- Lin, X., Schwartz, D.L. & Hatano, G. 2005. Toward teachers' adaptive metacognition. *Educational psychologist*, 40(4):245-255.
- Lipman, M. 2003. Thinking in education. 2nd ed. New York: Cambridge.
- Lipton, L. & Wellman, B. 1998. Pathways to understanding: patterns and practices in the learning-focused classroom. Guilford, Vt.: Pathways Publishing.
- Liu, Y.T. 2000. Creativity or novelty? *Design studies*, 21(3):261-276.
- Loyens, S., Magda, J. & Rikers, R. 2008. Self-directed learning in problem-based learning and its relationships with self-regulated learning. *Educational psychology review*, 20(4):411-427.
- Lubart, T.I. 1999. Creativity across cultures. (In Sternberg, R.J., ed. Handbook of creativity. Cambridge: Cambridge University Press. p. 339-350).
- Lubart, T.I. & Getz, I. 1997. Emotion, metaphor and the creative process. *Creativity research journal*, 10:285-301.
- Macfarlane, R. 2007. Romantic originality. Original copy: plagiarism and originality in nineteenth-century literature. Oxford: Oxford University Press.

- Machiette, B. 2009. Teaching through formal debate. (*In Contemporary learning series.*, eds. Using taking sides in the classroom. Dubuque: McGraw-Hill. p. 12-15.)
- Mahaye, T. & Jacobs, M. 2008. Teaching methods. (*In Jacobs, M., Vakalisa, N. & Gawe, N.C.G., eds. Teaching-learning dynamics. A participative approach for OBE. 3rd edition – fifth impression. Cape Town: Heinemann Publishers. p. 175-200).*
- Mammucari, D.R. 1989. A study to determine the impact of teacher training programs in creativity on improving observable traits of creative teaching. Pennsylvania: Temple University.
- Maree, K. & Pietersen, J. 2007a. The quantitative research process. (*In Maree, K., ed. First steps in research. Pretoria: Van Schaik Publishers. p. 145-153).*
- Maree, K. & Pietersen, J. 2007b. Surveys and the use of questionnaires. (*In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 155-170).*
- Maree, K. & Pietersen, J. 2007c. Sampling. (*In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 172-181).*
- Maree, K. & Van der Westhuizen, C. 2007. Planning a research proposal. (*In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 24-45).*
- Margolis, E. & Laurence, S. 2007. The ontology of concepts: abstract objects or mental representations? Wisconsin: University of Wisconsin Press.
- Marzano, R., Brandt, R., Hughes, C., Jones, B., Presseisen, B., Rankin, S. & Suhor, C. 1988. Dimensions of thinking: a framework for curriculum and instruction. Alexandria, Va.: Association for Supervision and Curriculum Development.
- Matlin, M.W. 2002. Cognition. 5th ed. New York: Thompson Wadsworth.
- Maxim, G.W. 2010. Dynamic social studies for constructivist classrooms. 9th ed. Boston: Pearson.

- Mayer, R.E. 1996. Learners as information processors: legacies and limitations of educational psychology's second metaphor. *Educational psychologist*, 31:151-161.
- McCaslin, M. & Hickey, D.T. 2001. Educational psychology, social constructivism, and educational practice: a case of emergent identity. *Educational psychologist*, 36:133-141.
- McCoy, J.M. & Evans, G.W. 2002. The potential role of the physical environment in fostering creativity. *Creativity research journal*, 14:409-426.
- McKee, E., Williamson, V.M. & Ruebush, L.E. 2007. Effects of demonstration laboratory on student learning. *Journal of science education and technology*, 16(5):395-400.
- McKenzie, J. 2007. Leading questions: from now on. *Educational technology journal*: 29.
- McMillan, J.H. & Schumacher, S. 2006. Research in education: a conceptual Introduction. Boston, Mass.: Allyn & Bacon.
- McNeill, J. & Wiles, J. 1990. The essentials of teaching: decisions, places and methods. New York: Macmillan.
- Merriam, S.B. 2009. Qualitative research: a guide to design and implementation. San Francisco, Calif.: Jossey-Bass.
- Merriam, S. B., Caffarella, R. S., & Baumgartner, L. M. 2007. *Learning in adulthood: a comprehensive guide*. San Francisco: John Wiley & Sons, Inc.
- Miller, D. 2002. Reading with meaning: teaching comprehension in the primary grades. Portland, Me.: Stenhouse Publishers.
- Monyai, R.B. 2006. Teaching strategies. (In Nieman, M.M. & Monyai, R.B. 2006. The educator as mediator of learning. Pretoria: Van Schaik. p. 104-135).
- Moore, B.N. & Parker, R. 2004. Critical thinking. New York: McGraw-Hill.

- Morrison, G.R., Ross, S.M., Kalman, H.K. & Kemp, J.E. 2011. Designing effective instruction. Hoboken, NJ.: John Wiley & Sons, Inc.
- Moseley, D., Baumfield, V., Elliot, J., Gregson, M., Higgins, S., Miller, J. & Newton, D.P. 2005. Frameworks for thinking. A handbook for teaching and learning. New York: Cambridge.
- Mumford, M.D. 2003. Where have we been, where are we going? Taking stock in creativity research. *Creativity research journal*, 15:107-120.
- Murphy, D.H. 1988. Modifying the traditional classroom model to facilitate the development of creative skills. Amherst, Mass.: University of Massachusetts. (Thesis - DEd).
- Narramore, R. A. B. 1992. The effects of selected classroom activities on creative thinking. Texas: East Texas State University. (Thesis - PhD).
- National Council of Education Research and Training. 2006. Position paper focus group on teaching of Social Sciences. New Delhi: National Council of Education Research.
- Niehuis, A.E., Manstead, A.S.R. & Spears, R. 2001. Multiple motives and persuasive communication: creative elaboration as a result of impression motivation and accuracy motivation. *Personality and social psychology bulletin*, 27:118-132.
- Nieuwenhuis, J. 2007a. Analysing qualitative data. (In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 99-122).
- Nieuwenhuis, J. 2007b. Qualitative research designs and data gathering techniques. (In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 70-97).
- Nisbett, R.E., Peng, K., Choi, I. & Norenzayan, A. 2001. Culture and systems of thought: holistic versus analytic cognition. *Psychological review*, 108:291-310.
- Nolan, V. 2004. Creativity: the antidote to the argument culture. (In Fryer, M., ed. Creativity and cultural diversity. Leeds: The Creativity Centre Educational Trust. p. 1).

- Novak, J.D. & Cañas, A.J. 2006. The theory underlying concept maps and how to construct and use them. Pensacola, Fla.: Institute for Human and Machine Cognition.
- Ognibene, L. 2007. The cure for the common school. Effective teaching methods for the 21st century. Boston: Universe Lincoln.
- O'Hara, L.A. & Sternberg, R.J. 1999. Creativity and intelligence. (*In* Sternberg, R.J., ed. Handbook of creativity. Cambridge: Cambridge University Press. p. 251-272).
- Orlich, C., Harder, R., Callahan, R., Trevisian, M. & Brown, A. 2004. Teaching strategies: a guide to effective instruction. 7th ed. Boston, Mass.: Houghton Mifflin.
- Ornstein, A.C. & Lasley, T.J. 2000. Strategies for effective teaching. 3rd ed. Boston, Mass.: McGraw-Hill.
- Panofsky, C.P. 2003. The relations of learning and student social class. (*In* Kozulin, A., Gindis, B., Ageyev, V.S. & Miller, S.M., eds. 2003. Vygotsky's educational theory in cultural context. Cambridge: Cambridge University Press. p. 411-431).
- Papalia, D.E., Wendkos Olds, S. & Duskin Feldman, R. 2008. A child's world. Infancy through adolescence. New York: McGraw-Hill.
- Patterson, C. 2008. Child development. Boston: McGraw-Hill.
- Paul, R.W. 1985. Bloom's taxonomy and critical thinking instruction. *Educational leadership*, 42:36-39.
- Pfenninger, K.H. & Shubik, V.R. 2001. The origins of creativity. New York: Oxford University Press.
- Philpott, J. 2009. Captivating your class. Effective teaching skills. New York: Continuum International Publishing Group.
- Piaget, J. 1981. Intelligence and affectivity: their relationship during child development. Palo Alto: Annual Reviews.

- Pietersen, J. & Maree, K. 2007a. Statistical analysis 1: descriptive statistics (In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 183-196).
- Pietersen, J. & Maree, K. 2007b. Overview of statistical techniques. (In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 225-252).
- Pietersen, J. & Maree, K. 2007c. Statistical analysis II: inferential statistics (In Maree, K., ed. First steps in research. Pretoria: Van Schaik. p. 198-213).
- Pikulsky, J.J. & Chard, D.J. 2005. Fluency: bridge between decoding and reading comprehension. *Reading teacher*, 58(6):510-519.
- Pink, D.H. 2005. A whole new mind: moving from the information age into the conceptual age. New York: Allen & Unwin.
- Pintrich, P.R. & Schunk, D.H. 2002. Motivation in education. Theory, research and applications. 2nd ed. New Jersey: Merrill Prentice Hall.
- Poincaré, H. 1908. The foundations of science. New York: Science Press.
- Powell, K.C. & Kalina, C.J. 2011. Cognitive and social constructivism: developing tools for an effective classroom. *Education*, 130(2):241-250.
- Prince, M. & Felder, R.M. 2006. Inductive teaching and learning methods: definitions, comparisons, and research bases. *Journal of engineering education*, 95(2):123-138.
- Puccio, G.J., Firestien, R.L., Coyle, C. & Masucci, C. 2006. A review of the effectiveness of creative problem solving training: a focus on workplace issues. *Creativity and innovation management*, 15:19-33.
- Rayner, E. 2005. Three to five years old. (In Rayner, E., Joyce, A., Rose, J., Twyman, M. & Clulow, C., eds. Human development: an introduction to the psychodynamics of growth, maturity and ageing. Sussex: Routledge. p. 120-146.)
- Rayner, E., Joyce, A., Rose, J., Twyman, M. & Clulow, C. 2005. Human development: an introduction to the psychodynamics of growth, maturity and ageing. Sussex: Routledge.

- Reiss, S.M. 1999. Women and creativity. (In Runco, M.A. & Pritzker, S., eds. *Encyclopaedia of creativity*, v. 2. San Diego: Academic Press. p. 699-708).
- Revelle, W. & Zinbarg, R. 2009. Coefficients alpha, beta, omega, and the glb: comments on Sijsma. *Psychometrika*, 74(1):145-154.
- Rice, J.K. 2003. Teacher quality: understanding the effectiveness of teacher attributes. Washington D.C: Economic Policy Institute.
- Rhodes, M. 1961. An analysis of creativity. *Phi Delta Kappan*, 42:305-311.
- Richards, R. 1999. The “four P’s” of creativity. (In Runco, M. & Pritzker, S., eds. *Encyclopaedia of creativity*, v. 1. San Diego, Calif.: Academic Press. Routledge. p. 733-742).
- Rosenshine, B., Meister, C. & Chapman, S. 1996. Teaching students to generate questions: a review of the intervention studies. *Review of educational research*, 66(2):181-221.
- Rudowicz, E. 2003. Creativity and culture: a two way interaction. *Scandinavian journal of educational research*, 47:273-290.
- Runco, M.A. 2003. Education for creative potential. *Scandinavian journal of educational research*, 47:317-324.
- Runco, M.A. 2007. Creativity: Theories and Themes : Research, Development, and Practice. San Diego, Calif.: Academic Press.
- Runco, M.A. & Charles, R. 1993. Judgments of originality and appropriateness as predictors of creativity. *Personality and individual differences*, 15:537-546.
- Ryckman, R. 2004. Theories of personality. Belmont, Calif.: Thomson/Wadsworth.
- Ryhammar, L. & Brolin, C. 1999. Creativity research: historical considerations and main lines of development. *Scandinavian journal of educational research*, 43:259-273.

- Santanen, E., Briggs, R. O., & de Vreede, G-J. 2004. Causal Relationships in Creative Problem Solving: Comparing Facilitation Interventions for Ideation. *Journal of Management Information Systems*, 20(4):167-198.
- Santrock, J.W. 2008. Information processing. a topical approach to life-span development. New York: McGraw-Hill.
- Schraw, G. & Olafson, L. 2003. Teachers' epistemological world views and educational practices. *Journal of cognitive education and psychology*, 3(2):178-235.
- Scott, G., Leritz, L.E. & Mumford, M.D. 2004. The effectiveness of creativity training: a quantitative review. *Creativity research journal*, 16(4):361-388.
- Selod, H. & Zenou, Y. 2003. Private versus public schools in post-apartheid South African cities: theory and policy implications. *Journal of development economics*, 71(2):351-394.
- Seng, A. & Kong, G. 2006. Enhancing the critical thinking skills and dispositions of pre-service teachers. Paper presented at the 7th National Conference of the International Association for Cognitive Education in Southern Africa, Vanderbijlpark. p.51-74.
- Sessoms, D. 2008. Interactive instruction: creating interactive learning environments through tomorrow's teachers. *International journal of technology in teaching and learning*, 4(2):86-96.
- Sheng, I.L.S. & Kok-Soo, T. 2010. Eco-efficient product design using theory of inventive problem solving (TRIZ) principles. *American journal of applied sciences*, 7(6):852-858.
- Shepard, J. & Greene, R.W. 2003. Sociology and you. Ohio: Glencoe McGraw-Hill.
- Shi, J. 2004. Intelligence current in creative activities. *High ability studies*, 15(2):173-187.
- Shoob, S., & Stout, C. 2008. Teaching social studies today. Huntington Beach, CA: Shell Education.

- Simonton, D.K. 1998. Achieved eminence in minority and majority cultures: convergence versus divergence in the assessment of 284 African Americans. *Journal of personality and social psychology*, 55:151-158.
- Simonton, D.K. 2000. Creativity: cognitive, personal, developmental, and social aspects. *American psychologist*, 55:151-158.
- Simonton, D.K. 2002. Underrepresented populations in creativity research. *Creativity research journal*, 14:279-280.
- Sing, C.C & Khine, M.S. 2008. Assessing the epistemological and pedagogical beliefs among pre-service teachers in Singapore. (In Khine, M.S., ed. 2008. Knowing, knowledge and beliefs. Epistemological studies across diverse cultures. Australia: Springer Verlag. p. 287-299).
- Skinner, B.F. 1984. The operational analysis of psychological terms. *Behavioural and brain sciences*, 7(4):547-581.
- Smit, M.H. & Oosthuizen, I.J. 2011. Improving school governance through participative democracy and the law. *South African journal of education*, 31(1):55-73.
- South Africa. Department of Basic Education. 2011. Curriculum and Assessment Policy. Further Education and Training Phase Grades 10-12. History. Cape Town: Government Printing Works.
- South Africa. Department of Education. 2003. National Curriculum Statement Grades 10 - 12: Geography. Pretoria: Government Printer.
- Starr, L. 2004. Creating a climate for learning: effective classroom management techniques. *Education world*: 5.
- Stavenga de Jong, J.A., Wierstra, R.F.A. & Hermanussen, J. 2006. An exploration of the relationship between academic and experiential learning approaches in vocational education. *British journal of educational Psychology*, 76:155-169.
- Sternberg, R.J. 2000. In search of the human mind. 3rd ed. London: Harcourt College.

- Sternberg, R.J. 2006. The nature of creativity. *Creativity research journal*, 18:87-98.
- Sternberg, R.J. & Lubart, T.I. 1999. The concept of creativity: prospects and paradigms. Cambridge: Cambridge University Press.
- Sullivan, C. & Harper, G. 2009. The creative environment: authors at work. Cambridge: English Association/Boydell & Brewer.
- Taylor, N. 2006. Focus on: challenges across the education spectrum. *JET bulletin*, 15:1-9.
- Theron, L.C. & Grosser, M.M. 2010. Qualitative research: data analysis and interpretation. FOER 611 Lecture, 10 March 2010. Vanderbijlpark: North-West University.
- Thorpe, S.A. 1996. African traditional religions. An introduction. Pretoria: University of South Africa.
- Torrance, E.P. 1977. Creativity in the classroom. Washington, D.C.: National Education Association.
- Torrance, E.P. 1993. Understanding creativity: where to start? *Psychological inquiry*, 4(3):229-234.
- Tournaki, N. 2003. The differential effects of teaching addition through strategy instruction versus drill and practice to students with and without learning disabilities. *Journal of learning disabilities*, 36(5):449-458.
- Tuovinen, J.E. & Sweller, J. 1999. A comparison of cognitive load associated with discovery learning and worked examples. *Journal of educational psychology*, 91(2):334-341.
- Van Rooy, T. 2006. Group and individual learning facilitation. A training manual for education, training and development practitioners. Centurion, Pretoria: Mantlebe Books.
- Van Rooyen, H.G., Van der Merwe, C. 2008. Teaching-learning media. (In Jacobs, M., Vakalisa, N.C.G., Gawe, N., eds. 2008. Teaching-learning dynamics. A participative approach for OBE. Sandton: Heinemann Publishers. p. 228-266).

- Von Helmholtz, H. 1878. The facts in perception. (*In Ewald, W.B., ed. 1996. From Kant to Hilbert: a source book in the foundations of mathematics. Cambridge: Oxford University Press. p. 698-726*).
- Wallace, B., Ross, A., Davies, J.B. & Anderson, T., eds. 2007. The mind, the body and the world: psychology after cognitivism. London: Imprint Academic.
- Wallas, G. 1926. The art of thought. New York: Harcourt, Brace.
- Wang, A.Y. 2007. Contexts of creative thinking: teaching, learning and creativity in Taiwan and the United States. Claremont Graduate University. (Thesis - PhD).
- Warburton, N. 2006. The basics of essay writing. London: Routledge.
- Weinert, F.E. & Helmke, A. 1995. Learning from wise Mother Nature or big brother instructor: the wrong choice as seen from an educational perspective. *Educational psychologist*, 30(3):135-142.
- Weisberg, R.W. 1986. Creativity: genius and other myths. New York: Freeman.
- Wertheimer, M. 1959. On discrimination experiments. *Psychological review*, 66(4):252-266.
- Wertsch, J.V., Del Rio, P. & Alvarez, A. 1995. Sociocultural studies of mind. Cambridge: Cambridge University Press.
- Winnicott, D.W. 1971. Playing and reality. London: Tavistock.
- Wolfe, R. & Lopez, A. 1993. Structured overviews for teaching science concepts and terms. *Journal of reading*, 36:315-317.
- Yin, R.K. 2009. Case study research: design and methods. 4th ed. Thousand Oaks, Calif.: Sage.

APPENDIX A

GDE PERMISSION



UMnyango Wezemfundo
Department of Education

Reference No: D2011/49
Lefapha la Thuto
Departement van Onderwys

Enquiries: Diane Bunting (011) 843 6503

Date:	5 November 2010
Name of Researcher:	Bunt B.J.
Address of Researcher:	4 Avon Villas Avon Drive Three Rivers Vereniging
Telephone Number:	016 910 3126 / 076 751 3079
Fax Number:	N/A
Email address:	Byron.bunt@nwu.ac.za
Research Topic:	The extent to which teachers nurture creative thinking in the Grade 9 Social Science classroom through the choice of teaching methods
Number and type of schools:	14 Secondary Schools
District/s/HO	Sedibang East

Re: Approval in Respect of Request to Conduct Research

This letter serves to indicate that approval is hereby granted to the above-mentioned researcher to proceed with research in respect of the study indicated above. The onus rests with the researcher to negotiate appropriate and relevant time schedules with the school/s and/or offices involved to conduct the research. A separate copy of this letter must be presented to both the School (both Principal and SGB) and the District/Head Office Senior Manager confirming that permission has been granted for the research to be conducted.

Permission has been granted to proceed with the above study subject to the conditions listed below being met, and may be withdrawn should any of these conditions be flouted:

1. The District/Head Office Senior Manager's concerned must be presented with a copy of this letter that would indicate that the said researcher's has/have been granted permission from the Gauteng Department of Education to conduct the research study.
2. The District/Head Office Senior Manager's must be approached separately, and in writing, for permission to involve District/Head Office Officials in the project.
3. A copy of this letter must be forwarded to the school principal and the chairperson of the School Governing Body (SGB) that would indicate that the researcher's have been granted permission from the Gauteng Department of Education to conduct the research study.

Office of the Chief Director: Information and Knowledge Management
Room 501, 111 Commissioner Street, Johannesburg, 2000 P.O.Box 7710, Johannesburg, 2000
Tel: (011) 355-0808 Fax: (011) 355-0734

P.001/002

(pax)

09/11/2010 15:00 GAUTENG ON LINE



NORTH-WEST UNIVERSITY
YUNIBESITI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
VAALDRIEHOEKKAMPUS

APPENDIX B

CONSENT FORMS

INGELIGTE TOESTEMMING – OUERS/VOOGDE

Geagte ouers/voogde

Ek is besig met 'n studie vir my MEd-graad en benodig inligting om die studie te voltooi. Die onderstaande skrywe sal aan u inligting verskaf rakende die studie en wat die betrokkenheid van u kind sal behels.

My navorsingstema, *Die mate waartoe onderwysers kreatiewe denke in Graad 9 Sosiale Wetenskappe klaskamers deur middel van onderrigmetodes aankweek*, is tersaaklik en hou verband met die Suid-Afrikaanse onderrig- en leersituasie waar daar van leerders verwag word om in staat te wees om probleme te identifiseer en op te los deur middel van kritiese en kreatiewe denkvaardighede. Daar sal van u kind verwag word om 'n vraelys te voltooi wat nie langer as 20 minute sal duur nie. Die voltooiing van die vraelys sal nie akademiese tyd in beslag neem nie. Die vraelys sal anoniem voltooi word, en u kind sal nie tydens die navorsing geïdentifiseer word nie. Die doel met die vraelys is om vas te stel tot watter mater die onderrigpraktyk van onderwysers in Sosiale Wetenskappe klaskamers kreatiwiteit aankweek.

Alle inligting wat met die vraelys ingesamel word sal streng vertroulik hanteer word, en anoniem aangewend mag word vir navorsings- en publiseringsdoeleindes. Daar spruit geen risiko of direkte voordele uit u kind se deelname aan die navorsingsprojek voort nie. Die bevindinge van die navorsing kan egter gebruik word om aanbevelings ter verbetering van die onderrigpraktyk van onderwysers in Sosiale Wetenskappe se klaskamers te maak sodat leerders se kreatiwiteit bevorder word. Deelname aan die navorsing is vrywillig, en u kind mag te enige tyd van die navorsing onttrek.

As u gemaklik voel met die verduideliking sal ek dit hoog op prys stel indien u die onderstaande gedeelte kan voltooi waar u aandui dat u toestemming verleen dat u kind aan die studie mag deel neem. Indien u enige navrae het, kan u my, Byron Bunt (016 910 3126 of e-pos: Byron.bunt@nwu.ac.za) skakel, of met my studieleier, Prof. Mary Grosser (016 910 3063), in verbinding tree.

Handtekening: Vader/Voog

Handtekening: Moeder/Voog

Datum

INFORMED CONSENT – PARENTS/GUARDIANS

Dear Parents/Guardians

I am busy with a research study for my MEd-degree, and I need assistance to complete the studies. This letter provides information regarding the study, and what the involvement of your child will entail.

My research entitled “*The extent to which teachers nurture creative thinking in Grade 9 Social Sciences classrooms through teaching methods*” links well with the present teaching and learning situation in South Africa where it is expected of learners to identify and solve problems by means of critical and creative thinking skills. Your child will be requested to complete a questionnaire that will not take longer than 20 minutes. The completion of the questionnaire will not interfere with academic teaching time. Furthermore, questionnaire completion will be anonymous, and your child will not be identified throughout the completion of the study. The purpose of the questionnaire is to determine to what extent the teaching practices of Social Sciences teachers nurture creative thinking among learners.

All information that will be collected with the questionnaires will be handled confidentially and results will be reported in an anonymous way for research and publication purposes. There is no risk or direct benefits for taking part in the study. However, the findings could be utilized to make recommendations regarding the improvement of the teaching practices of Social Sciences teachers in order to nurture creative thinking in the Social Sciences classroom. Participation will be voluntary and your child may withdraw from the research at any time.

If you feel comfortable with the contents of the explanation, I will appreciate it if you could sign the section indicating your consent that your child may take part in the study. If you have any questions regarding the research you can contact me, Byron Bunt (016 910 3126 or e-mail Byron.bunt@nwu.ac.za), or my study leader, Prof. Mary Grosser (016 910 3063).

Signature: Father/Guardian

Signature: Mother/Guardian

Date

INGELIGTE TOESTEMMING – SKOOLHOOF EN ONDERWYSERS

Geagte skoolhoof en onderwysers

Ek is besig met 'n studie vir my MEd-graad en benodig inligting om die studie te voltooi. Die onderstaande skrywe sal aan u inligting verskaf rakende die studie en wat die betrokkenheid van u skool, leerders en onderwysers sal behels.

My navorsingstema, “*Die mate waartoe onderwysers kreatiewe denke in Graad 9 Sosiale Wetenskappe klaskamers deur middel van onderrigmetodes aankweek*” is tersaaklik en hou verband met die Suid-Afrikaanse onderrig- en leersituasie waar daar van leerders verwag word om in staat te wees om probleme te identifiseer en op te los deur middel van kritiese en kreatiewe denkvaardighede. Daar sal van Graad 9 Sosiale Wetenskappe leerders verwag word om 'n vraelys te voltooi wat ongeveer 20 minute sal duur. Van die Graad 9 Sosiale Wetenskappe onderwysers sal verwag word om deel te neem aan 'n een-tot-een onderhoud wat nie langer as een uur sal duur nie, en geskeduleer sal word op 'n tyd wat vir die onderwysers geskik is. Die voltooiing van die vraelys en die afneem van die onderhoud sal so geskeduleer word dat dit nie akademiese tyd in beslag neem nie. Die navorsing sal anoniem wees, en onderwysers en leerders sal deur middel van 'n kode geïdentifiseer word, en die naam van die skool sal ook nie tydens die analisering, rapportering en publisering van die navorsingsbevindinge bekend gemaak word nie. Die doel met die vraelys en die onderhoud is om vas te stel hoe onderwysers in Sosiale Wetenskappe klaskamers kreatiwiteit aankweek.

Daar spruit geen risiko of direkte voordele uit die leerders en onderwysers se deelname aan die navorsingsprojek voort nie. Die bevindinge van die navorsing kan egter gebruik word om aanbevelings ter verbetering van die onderrigpraktyk van onderwysers in Sosiale Wetenskappe se klaskamers te maak sodat leerders se kreatiwiteit bevorder word. Deelname aan die navorsing is vrywillig, en die leerders en onderwysers mag te enige tyd van die navorsing onttrek.

As u as skoolhoof gemaklik voel met die verduideliking sal ek dit hoog op prys stel indien u die onderstaande gedeelte kan voltooi waar u aandui dat u toestemming verleen dat u skool en die Graad 9 Sosiale Wetenskappe leerders en onderwysers aan die studie kan deel neem. As u as onderwyser gemaklik voel met die verduideliking sal ek dit hoog op prys stel indien u die onderstaande gedeelte kan voltooi waar u aandui dat u toestemming verleen dat u aan die onderhoud sal deelneem. Indien u enige navrae het oor die studie, kan u my, Byron Bunt (016 910 3126 of e-pos: Byron.bunt@nwu.ac.za) skakel, of met my studieleier, Prof. Mary Grosser (016 910 3063), in verbinding tree.

Handtekening: Skoolhoof

Handtekening: Onderwyser

Datum

INFORMED CONSENT – PRINCIPAL AND TEACHER

Dear School Principal and Teachers

I am busy with a research study for my MEd-degree, and I need assistance to complete the studies. This letter provides information regarding the study and what the involvement of your child will entail.

My research entitled *“The extent to which teachers nurture creative thinking in Grade 9 Social Sciences classrooms through teaching methods”* links well with the present teaching and learning situation in South Africa where it is expected of learners to identify and solve problems by means of critical and creative thinking skills. It will be expected of the Grade 9 Social Sciences learners to complete a questionnaire that will not take longer than 20 minutes. The Grade 9 Social Sciences teachers will be involved in one-on-one interviews which will be scheduled at times convenient to them. The completion of the questionnaires and the interviews will not interfere with academic teaching time. Furthermore, questionnaire completion will be anonymous, and the learners will not be identified throughout the completion of the study. The educators who will take part in the interviews will be identified by means of a code. No names of the participants or the school will be revealed throughout the data analysis and interpretation and reporting of the research findings. The purpose of the questionnaire and the interviews is to determine to what extent the teaching practices of the Social Sciences teachers nurture creative thinking among learners.

There is no risk or direct benefits for taking part in the study. However, the findings could be utilized to make recommendations regarding the improvement of the teaching practices of Social Sciences teachers in order to nurture creative thinking in the Social Sciences classroom. Participation will be voluntary and the learners and teachers may withdraw from the research at any time.

If you as principal feel comfortable with the contents of the explanation I will appreciate it if you could sign the section indicating your consent that your school and the Grade 9 Social Sciences learners and teachers may take part in the study. If you as teacher feel comfortable with the contents of the explanation, I will appreciate it if you could sign the section indicating your consent to take part in the study. Should you have any questions regarding the research you can contact me, Byron Bunt (016 910 3126 or e-mail Byron.bunt@nwu.ac.za), or contact my study leader, Prof. Mary Grosser (016 910 3063).

Signature: Principal

Signature: Teacher

Date

INFORMED CONSENT – LEARNER

Dear Learner

I am busy with a research study for my MEd-degree, and I need assistance to complete the studies. This letter provides information regarding the study and what your involvement will entail. I need your assistance to provide me with information to complete the study

My research entitled “*The extent to which teachers nurture creative thinking in Grade 9 Social Sciences classrooms through teaching methods*” links well with the present teaching and learning situation in South Africa where it is expected of learners to identify and solve problems by means of critical and creative thinking skills. You will be requested to complete a questionnaire that will not take longer than 20 minutes. The completion of the questionnaire will not interfere with academic teaching time. Furthermore, questionnaire completion will be anonymous, and you or your school and teachers will not be identified throughout the completion of the study. The purpose of the questionnaire is to determine to what extent the teaching practices of your Social Sciences teachers nurture creative thinking among learners.

All information that will be collected with the questionnaires will be handled confidentially and results will be reported in an anonymous way for research and publication purposes. There is no risk or direct benefits for taking part in the study. However, the findings could be utilized to make recommendations regarding the improvement of the teaching practices of Social Sciences teachers in order to nurture creative thinking in the Social Sciences classroom. Participation will be voluntary and you may withdraw from the research at any time.

If you feel comfortable with the contents of the explanation, I will appreciate it if you could sign the section indicating your consent that you are willing to take part in the study. If you have any questions regarding the research you can contact me, Byron Bunt (016 910 3126 or e-mail Byron.bunt@nwu.ac.za), or contact my study leader, Prof. Mary Grosser (016 910 3063).

Signature: Learner

Date

INGELIGTE TOESTEMMING – LEERDERS

Geagte leerders

Ek is besig met 'n studie vir my MEd-graad en benodig inligting om die studie te voltooi. Die onderstaande skrywe sal aan u inligting verskaf rakende die studie en wat u betrokkenheid sal behels.

My navorsingstema, “*Die mate waartoe onderwysers kreatiewe denke in Graad 9 Sosiale Wetenskappe klaskamers deur middel van onderrigmetodes aankweek*” is tersaaklik en hou verband met die Suid-Afrikaanse onderrig- en leersituasie waar daar van leerders verwag word om in staat te wees om probleme te identifiseer en op te los deur middel van kritiese en kreatiewe denkvaardighede. Daar sal van u verwag word om 'n vraelys te voltooi wat nie langer as 20 minute sal duur nie. Die voltooiing van die vraelys sal nie akademiese tyd in beslag neem nie. Die vraelys sal anoniem voltooi word, en nie u, die skool of die onderwysers wat aan die studie deelneem sal tydens die navorsing geïdentifiseer word nie. Die doel met die vraelys is om vas te stel tot watter mate die onderrigpraktyk van onderwysers in Sosiale Wetenskappe klaskamers kreatiwiteit aankweek. U deelname is vrywillig en u mag te enige tyd aan die navorsing onttrek.

Alle inligting wat met die vraelys ingesamel word sal streng vertroulik hanteer word, en anoniem aangewend word vir navorsings- en publiseringsdoeleindes. Daar spruit geen risiko of direkte voordele uit u deelname aan die navorsingsprojek voort nie. Die bevindinge van die navorsing kan egter gebruik word om aanbevelings ter verbetering van die onderrigpraktyk van onderwysers in Sosiale Wetenskappe se klaskamers te maak sodat leerders se kreatiwiteit bevorder word.

As u gemaklik voel met die verduideliking sal ek dit hoog op prys stel indien u die onderstaande gedeelte kan voltooi waar u aandui dat u toestemming verleen dat u aan die studie sal deelneem. Indien u enige navrae het, kan u my, Byron Bunt (016 910 3126 of e-pos: Byron.bunt@nwu.ac.za) skakel, of met my studieleier, Prof. Mary Grosser (016 910 3063), in verbinding tree.

Handtekening: Leerder

Datum

APPENDIX C

QUESTIONNAIRE TO LEARNERS



QUESTIONNAIRE TO LEARNERS

Dear learner

I am currently busy with a Masters Degree at the North-West University, Vaal Triangle Campus. My research focuses on the nurturing of creative thinking in the Social Sciences (History and Geography) classroom. I will appreciate it if you can complete the questionnaire. You will complete the questionnaire anonymously and all information will be handled with the utmost confidentiality. Thank you, your time and cooperation are valued.

Mr. B. Bunt

SECTION A: BIOGRAPHIC INFORMATION

Complete the following information about yourself by marking with an X in the appropriate block:

1.	Gender	Male	Female			
2.	Type of school	Ex-Model C	Township	Private		
3.	Ethnic Group	Black	White	Asian	Coloured	Other

SECTION B CREATIVE THINKING: ELABORATION

Read the following statements and evaluate the classroom practice of your Social Sciences teacher on the numerical scale from 1-4 with an X where you feel it is applicable.		Almost always	Often	Some-times	Almost never
1. My teacher makes use of the following different resources when teaching:					
1.1	Political cartoons	1	2	3	4
1.2	Photographs	1	2	3	4
1.3	Maps	1	2	3	4
1.4	Textbooks	1	2	3	4
1.5	Chalk board	1	2	3	4
1.6	Overhead projector	1	2	3	4
2.	My teacher lets me explain answers to questions in detail.	1	2	3	4
3.	I normally provide short answers to questions.	1	2	3	4

SECTION C CREATIVE THINKING: FLUENCY

Read the following statements and evaluate the classroom practice of your teacher on the numerical scale from 1-4 with an X where you feel it is applicable.		Almost always	Often	Some-times	Almost never
1.	My teacher makes use of different methods when teaching.	1	2	3	4
2.	When doing activities in class, my teacher expects me to:				
2.1	Recall previous information in order to complete activities	1	2	3	4
2.2	Understand information before I complete an activity	1	2	3	4
2.3	Solve problems on my own	1	2	3	4
2.4	Distinguish between important and unimportant information	1	2	3	4
2.5	Synthesize (put together) information	1	2	3	4
2.6	Evaluate information in terms of advantages and disadvantages	1	2	3	4
2.7	Summarise information in my own words	1	2	3	4
2.8	Motivate my answers to questions	1	2	3	4

SECTION D CREATIVE THINKING: FLEXIBILITY

Read the following statements and evaluate the classroom practice of your teacher on the numerical scale from 1-4 with an X where you feel it is applicable.		Almost always	Often	Some-times	Almost never
1.	My teacher allows me to provide my own ideas	1	2	3	4
2.	My teacher allows different answers to questions	1	2	3	4
3.	My teacher does not have a problem if I do not have an answer to a question	1	2	3	4
4.	My teacher gives everybody in the class similar activities to do	1	2	3	4
5.	My teacher allows me to provide more than one answer to a question	1	2	3	4
6.	When asking questions, my teacher usually asks these kinds of questions:				
6.1	Questions based on remembering information	1	2	3	4

Read the following statements and evaluate the classroom practice of your teacher on the numerical scale from 1-4 with an X where you feel it is applicable.	Almost always	Often	Some-times	Almost never
6.2 Questions based on my feelings or opinions	1	2	3	4
6.3 Questions based on finding disadvantages in information	1	2	3	4
6.4 Questions based on finding advantages in information	1	2	3	4
6.5 Questions based on coming up with a new/original answer	1	2	3	4
6.6 Questions that ask me to motivate my answers	1	2	3	4

SECTION E CREATIVE THINKING: ORIGINALITY

Read the following statements and evaluate the classroom practice of your teacher on the numerical scale from 1-4 with an X where you feel it is applicable.	Almost always	Often	Some-times	Almost never
1. My teacher lets me think for myself	1	2	3	4
2. I am allowed to phrase answers in my own words	1	2	3	4
3. I am allowed to differ in my opinion from others in class	1	2	3	4
4. My teacher expects us to provide answers to questions that correspond exactly with the information in our textbooks	1	2	3	4

SECTION F TEACHING STRATEGIES

Read the following statements and evaluate the frequency with which your Social Sciences teacher uses the following teaching strategies on the numerical scale from 1-4 with an X where you feel it is applicable.	Almost always	Often	Some-times	Almost never
1. Lecturing	1	2	3	4
2. Repetition of information	1	2	3	4
3. Drilling information (imprinting and memorization of information)	1	2	3	4
4. Demonstrations	1	2	3	4
5. Problem solving	1	2	3	4
6. Case studies (investigation activities)	1	2	3	4
7. Mind maps (spider diagram)	1	2	3	4

Read the following statements and evaluate the frequency with which your Social Sciences teacher uses the following teaching strategies on the numerical scale from 1-4 with an X where you feel it is applicable.		Almost always	Often	Some-times	Almost never
8.	Home work	1	2	3	4
9.	Research projects	1	2	3	4
10.	Essays	1	2	3	4
11.	Discussions in class	1	2	3	4
12.	Working in groups	1	2	3	4
13.	Role play (acting a play)	1	2	3	4
14.	Field trips (going to museums, monuments etc)	1	2	3	4
15.	Debates	1	2	3	4
16.	Questioning	1	2	3	4

Please indicate which questions or words were problematic to you. (Used for the pilot study only)



VRAELYS AAN LEERDERS

Geagte Leerder

Ek doen tans my meestersgraad by die Vaaldriehoekkampus van die Noordwes-universiteit. My navorsing handel oor die ontwikkeling van kreatiewe denke in die Sosiale Wetenskappe (Geskiedenis en Aardrykskunde) klaskamer. Ek sal dit waardeur indien u die vraelys sou voltooi. Die vraelys word anoniem voltooi en alle inligting sal as uiters vertroulik hanteer word. Dankie, u tyd en samewerking word hoog op prys gestel.

Mnr. B. Bunt

AFDELING A: BIOGRAFIESE INLIGTING

Voltooi die volgende inligting oor uself deur 'n X-as in die toepaslike blokkie te plaas

1.	Geslag	Manlik	Vroulik			
2.	Tipe skool	Voormalige Model C	Township	Privaat		
3.	Etniese Groep	Swart	Wit	Asiër	Kleurling	Ander

AFDELING B: KREATIEWE DENKE: TOELIGTING

Lees die volgende stellings en evalueer die klaskamerpraktiek van u Sosiale Wetenskappe-onderwyser volgens die numeriese skaal 1-4. Plaas 'n X-in die blokkie wat u toepaslik ag		Amper Altyd	Dikwels	Soms	Byna nooit nie
1.	My onderwyser gebruik die volgende verskillende hulpmiddels wanneer hy/sy klas gee:				
1.1	Politiese spotprente	1	2	3	4
1.2	Foto's	1	2	3	4
1.3	Kaarte	1	2	3	4
1.4	Handboeke	1	2	3	4
1.5	Swartbord	1	2	3	4
1.6	Oorhoofse projektor	1	2	3	4
2.	My onderwyser laat my toe om antwoorde op vrae in detail te verduidelik.	1	2	3	4
3.	My antwoorde op vrae is gewoonlik kort.	1	2	3	4

AFDELING C KREATIEWE DENKE: VLOTHEID

Lees die volgende stellings en evalueer die klaskamerpraktik van u onderwyser volgens die numeriese skaal 1-4. Plaas 'n X- in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
1. My onderwyser gebruik verskillende metodes wanneer hy/sy klas gee.	1	2	3	4
2. Wanneer ek klasaktiwiteite doen, verwag my onderwyser dat ek:				
2.1 vorige inligting moet oproep om sodoende aktiwiteite af te handel;	1	2	3	4
2.2 inligting verstaan voordat ek 'n aktiwiteit afgehandel het;	1	2	3	4
2.3 probleme op my eie moet oplos;	1	2	3	4
2.4 tussen belangrike en onbelangrike inligting moet kan onderskei;	1	2	3	4
2.5 inligting moet saamvoeg (sintetiseer);	1	2	3	4
2.6 inligting ten opsigte van die voordele en nadele moet evalueer;	1	2	3	4
2.7 inligting in my eie woorde moet opsom;	1	2	3	4
2.8 my antwoorde op vrae moet motiveer.	1	2	3	4

AFDELING D KREATIEWE DENKE: BUIGSAAMHEID

Lees die volgende stellings en evalueer die klaskamerpraktik van u onderwyser volgens die numeriese skaal 1-4. Plaas 'n X- in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
1. My onderwyser laat my toe om my eie idees te verskaf.	1	2	3	4
2. My onderwyser laat verskillende antwoorde op vrae toe.	1	2	3	4
3. My onderwyser gee nie om as ek nie 'n antwoord op 'n vraag kan gee nie.	1	2	3	4
4. My onderwyser gee almal in die klas soortgelyke aktiwiteite om te doen.	1	2	3	4
5. My onderwyser laat my toe om meer as een antwoord op 'n vraag te gee.	1	2	3	4
6. Wanneer daar vrae gevra word, vra my onderwyser gewoonlik die volgende soorte				

Lees die volgende stellings en evalueer die klaskamerpraktyk van u onderwyser volgens die numeriese skaal 1-4. Plaas 'n X-in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
vrae:				
6.1 Vrae wat op die onthou van inligting gegrond is.	1	2	3	4
6.2 Vrae wat op my gevoelens of menings gegrond is.	1	2	3	4
6.3 Vrae wat op die vind van nadele van inligting gegrond is.	1	2	3	4
6.4 Vrae wat op die vind van voordele van inligting gegrond is.	1	2	3	4
6.5 Vrae wat op die voorstel van 'n nuwe/oorspronklike antwoord gegrond is.	1	2	3	4
6.6 Vrae wat vereis dat ek my antwoorde moet motiveer.	1	2	3	4

AFDELING E KREATIEWE DENKE: OORSPRONKLIKHEID

Lees die volgende stellings en evalueer die klaskamerpraktyk van u onderwyser volgens die numeriese skaal 1-4. Plaas 'n X-in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
1. My onderwyser laat my toe om vir myself te dink.	1	2	3	4
2. Ek mag antwoorde in my eie woorde stel.	1	2	3	4
3. My mening mag van my klasmaats s'n verskil.	1	2	3	4
4. My onderwyser verwag dat ons antwoorde presies met die inligting in ons handboeke moet ooreenstem.	1	2	3	4

AFDELING F ONDERRIG STRATEGIEë

Lees die volgende stellings en evalueer hoe dikwels u Sosiale Wetenskappe onderwyser die volgende onderrig-strategieë toepas volgens die numeriese skaal 1-4. Plaas 'n X-in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
17. Dosing (Lesings gee)	1	2	3	4
18. Herhaling van inligting	1	2	3	4
19. Inoefening van inligting	1	2	3	4
20. Demonstrasies	1	2	3	4
21. Probleemoplossing	1	2	3	4

Lees die volgende stellings en evalueer hoe dikwels u Sosiale Wetenskappe orderwyser die volgende onderrig-strategie toepas volgens die numeriese skaal 1-4. Plaas 'n X-in die blokkie wat u toepaslik ag.	Amper Altyd	Dikwels	Soms	Byna nooit nie
22. Gevallestudies (ondersoek aktiwiteite)	1	2	3	4
23. Ideekaarte (spinnepkop diagram)	1	2	3	4
24. Huiswerk	1	2	3	4
25. Navorsingsprojekte	1	2	3	4
26. Opstelle	1	2	3	4
27. Klasbesprekings	1	2	3	4
28. Groepwerk	1	2	3	4
29. Rolspel (optree)	1	2	3	4
30. Uitstappies (na monumente of museum)	1	2	3	4
31. Debatte	1	2	3	4
32. Vraagstelling	1	2	3	4

Dui asseblief aan watter woorde of vrae vir u problematies was (Slegs gebruik vir die loodsondersoek)

APPENDIX D

INTERVIEW PROTOCOL

Interview schedule:
Township School teachers

1. How many years of experience do you have as a Social Sciences teacher?
2. How would you define the term “creative thinking”?

Questions:

3. According to your learners’ responses, it was indicated that teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences. Why do you think there is such an emphasis placed on these resources?
4. Why do you think the use of political cartoons and photographs is indicated as underused in the Social Sciences classroom?
5. Learner responses indicated a heavy reliance on the factual recall of knowledge, to motivate answers to questions and the understanding of information. Why is that?
6. What about the underuse of problem solving, evaluating and summarizing? Why are these underused?
7. Learners indicated overwhelmingly that you give similar activities to all learners. Why is this done? Will this not hamper creative thinking?
8. How do you accommodate gifted learners or learners with barriers if all learners receive similar activities?
9. A large percentage of learner responses indicated that their answers should correspond with that of the textbook, thus hampering their originality. Why is this done?

10. It appears that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information. Why is this the case?

11. What about other strategies that are underused, like mind maps, essays, group work, role-play, field trips and debates? Why are these not used sufficiently?

12. According to the data, it appears that you nurture learner originality the most. Why, and how do you manage to do this?

13. According to the learner responses, it indicated that the learners who are taught in English were more positive with their scrutiny of their teacher's teaching strategies for promoting creative thinking, as opposed to the Afrikaans learners. Why do you think this is the case?

14. Data obtained suggested that Township School teachers do not foster flexible thinking and originality in their learners as much and as good as Ex-model C or Private School teachers do. Why is this so? What do you think can be done to nurture flexibility and originality more?

Interview schedule:

Ex-Model C School teachers

1. How many years of experience do you have as a Social Sciences teacher?
2. How would you define the term “creative thinking”?

Questions:

3. According to your learners’ responses, it was indicated that teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences. Why do you think there is such an emphasis placed on these resources?
4. Why do you think the use of political cartoons and photographs is underused in the Social Sciences classroom?
5. Learner responses indicated a heavy reliance on the factual recall of knowledge, to motivate answers to questions and the understanding of information. Why is that?
6. What about the underuse of problem solving, evaluating and summarizing? Why are these underused?
7. Learners indicated overwhelmingly that teachers give similar activities to all learners. Why is this done? Don’t you think this will hamper creative thinking?
8. How do you accommodate gifted learners or learners with barriers if all learners receive similar activities?
9. A large percentage of learner responses indicated that their answers should correspond with that of the textbook, thus hampering their originality. Why is this done?

10. It appears that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information. Why is this the case?

11. What about other strategies that are underused, like mind maps, essays, group work, role-play, field trips and debates? Why are these not used sufficiently?

12. According to the data, it appears that teachers are nurturing learner originality the most. Why and how do you manage to do this?

13. According to the learner responses, it indicated that English speaking learners were more positive with their scrutiny of their teacher's teaching strategies for nurturing creative thinking, as opposed to the Afrikaans speaking learners. Why do you think this is?

14. Data obtained suggested that Township School teachers do not foster flexible thinking and originality in their learners as much as Private School and Ex-model C teachers do. Why is this so? What do you think can be done to nurture flexibility and originality more?

Interview schedule:

Private School teachers

1. How many years of experience do you have as a Social Sciences teacher?
2. How would you define the term “creative thinking”?

Questions:

3. According to your learners' responses, it was indicated that teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences. Why do you think there is such an emphasis placed on these resources?
4. Why do you think the use of political cartoons and photographs is underused in the Social Sciences classroom?
5. Learner responses indicated a heavy reliance on the factual recall of knowledge, to motivate answers to questions and the understanding of information. Why is that?
6. What about the underuse of problem solving, evaluating and summarizing? Why are these underused?
7. Learners indicated overwhelmingly that teachers give similar activities to all learners. Why is this done? Don't you think this will hamper creative thinking?
8. How do you accommodate gifted learners or learners with barriers if all learners receive similar activities?
9. A large percentage of learner responses indicated that their answers should correspond with that of the textbook, thus hampering their originality. Why is this done?

10. It appears that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information. Why is this the case?
11. What about other strategies that are underused, like mind maps, essays, group work, role-play, field trips and debates? Why are these not used sufficiently?
12. According to the data, it appears that teachers are nurturing learner originality the most. Why and how do you manage to do this?
13. According to the learner responses, it indicated that English learners were more positive with their scrutiny of their teacher's teaching strategies as opposed to the Afrikaans learners. Why do you think this is?
14. Data obtained suggested that Township School teachers do not foster flexible thinking and originality in their learners as Ex-Model C Schools and Private School teachers do. Why do you think this is the case? How do you foster flexible thinking and originality?

APPENDIX E

VERBATIM TRANSCRIPTS

PARTICIPANT A

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT A (TOWNSHIP)	OPEN CODES	AXIAL CODES
The teacher was very defensive in some instances, but was still open enough to answer my questions	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 1: I have been teaching it for 12 years. 4. Researcher: How would you define the term creative 5. thinking? 6. Participant 1: It has to do with thinking of original things, 7. being able to have a broad mind-set. 8. Researcher: According to your learners' responses, it was 9. indicated that teachers mainly make use of the chalkboard, 10. textbooks and maps during the teaching of the	12 years Original things, broad mind-set	He/she is an experienced teacher Partial understanding of creative thinking being originality and open minded

	subject. 11. Why do you think there is such an emphasis on these 12. resources? 13. Participant 1: I think from my school, it has to do with 14. funds, as this school has got very little resources. So we 15. make use of what we have, like textbooks, but we also 16. don't have textbooks either. The chalkboard I use a lot. 17. Researcher: Why do you think the use of political cartoons 18. and photographs is indicated as underused in the Social 19. Science classroom? 20. Participant 1: It is to my understanding that political	Funds, very little resources	The use of resources that limits the development of critical thinking is linked to a lack of finances

	do the work. 32. Researcher: What about the underuse of problem- 33. solving, evaluating and summarizing? Why are these not 34. used? 35. Participant 1: These are very difficult to use in my opinion. 36. To create a task in which learners must solve a problem, it 37. is very challenging for me to make these tasks. My 38. learners must evaluate, I ask them to judge sources all 39. the time. 40. Researcher: Learners indicated overwhelmingly that 41. you give similar activities to all learners. Don't you think	skills Difficult to use, challenging for me to make these tasks, Judge sources	Teachers not competent in the creation of problem solving activities

	the 53. syllabus is too much, but I try to help them individually. 54. Researcher: A large percentage of learner responses 55. indicated that their answers should correspond with that 56. of the textbook, thus hampering their originality. Why is 57. this done? 58. Participant 1: You must remember that when we are 59. assessing the learners, they must know some facts. I 60. cannot create difficult tests either because then all my 61. learners will do badly. I am trying to assist them. 62. Researcher: It appears that direct instruction is mainly	Must know some facts, cannot create difficult tests, all my learners will do badly	Belief that more challenging tests will cause learners to fail

	63. used in the teaching of Social Sciences, for example 64. lecturing, repetition of information and drilling of 65. information. Why is this the case? 66. Participant 1: I feel that these methods get to the point. 67. At the end of the day when tests and exams are written, 68. they can remember facts easier if I teach them this way. It 69. allows me to control my class a lot better. 70. Researcher: What about other strategies that are 71. underused, like mind maps, essays, group work, role play, 72. field trips and debates? Why aren't these used? 73. Participant 1: Time. That is the biggest issue here. I simply 74. do not have the time to get a class debate going,	These methods get to the point, remember facts easier if I teach them this way, control my class a lot better Time, I simply do not have the time,	Direct instruction easier to use and can maintain class discipline Various reasons for not using other methods such as

	or for 75. them to write essays. Another issue is disorderly 76. behaviour. Letting them role play or work in groups causes 77. a lot of discipline problems. I don't use them. 78. Researcher: According to the data, it appears that you 79. nurture learner originality the most. Why and how do you 80. manage to do this? 81. Participant 1: Well in my classes, I allow my learners to 82. share their ideas amongst each other. When I discuss the 83. work, they are free to think for themselves and to give 84. opinions. I think in this way they are developing originality. 85. Researcher: According to the learner	disorderly behaviour, discipline problems Allows learners to share ideas, Free to think for themselves, give opinions	time and to avoid disciplinary problems Friendly and open classroom climate, learners can interact

	responses, it 86. indicated that the learners taught in English were more 87. positive with the scrutiny of their teacher's teaching 88. strategies for promoting creative thinking as opposed to the 89. Afrikaans learners. Why do you think this is the case? 90. Participant 1: That is difficult to say. It is possible that the 91. Afrikaans teachers are more strict when it comes to 92. teaching. Because of this, the learners were more 93. negative. 94. Researcher: Data obtained suggested that township 95. school teachers do not foster flexible thinking in	Afrikaans teachers are more strict	Afrikaans culture much more stricter

	their 96. learners as much and as good as Ex-Model C or private 97. schools do. Why is this so? 98. Participant 1: It comes down to resources. These other 99. richer schools have the money to buy things to assist their 100. learners. Here in the township, we must make do with 101. what we have. Our learners may not be as flexible in 102. their thinking because they only work with very few 103. resources.	It comes down to resources, richer schools have the money to buy things, here in the township we must make do with what we have, work with very few resources	Lack of creative thinking due to financial and funding issues, and a lack of resources

PARTICIPANT B

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT B (TOWNSHIP)	OPEN CODES	AXIAL CODES
This particular teacher was friendly, but in a way she seemed to justify her actions quite a lot.	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 2: In Social Sciences, it has now been 5 years. 4. Researcher: How would you define the term “creative 5. thinking? 6. Participant 2: For me, this means being unique, the skill to 7. come up with new stuff. 8. Researcher: According to your learner responses, it was 9. indicated that teachers mainly make use of the chalkboard, 10. textbooks and maps when teaching Social	Easy to use, must make use of a textbook, don't think it's wrong, every classroom has a chalkboard, why not use them	Ease of use of particular resources, justification for use due to availability

	Sciences. Why 11. do you think such an emphasis is placed on these? 12. Participant 2: I think that these resources are very easy to 13. use, so I make use of it a lot. All teachers must make use 14. of a textbook, so I don't think it's wrong. Every classroom 15. has a chalkboard too, so why not use them if you can? 16. Researcher: Why do you think the use of political cartoons 17. and photographs is indicated as underused in the Social 18. Science classroom? 19. Participant 2: Unfortunately I would like to use these 20. things, but I can't copy pages for each learner.	I would like to use, can't copy pages, not enough money to buy paper for everyone, some photos and cartoons in textbook	and access Willingness to use resources, but financial issues prevent their use

	This school 21. doesn't have enough money to buy paper for everyone. 22. But at least they have some photos and cartoons in the 23. textbook. 24. Researcher: Learner responses indicated a heavy reliance 25. on the factual recall of knowledge, to motivate answers to 26. questions and the understanding of information. Why is 27. this the case? 28. Participant 2: I am not sure, but maybe it involves how we 29. teach. My learners must remember certain events and 30. dates, they must remember the formulas for calculating	Must remember certain events and dates, formulas for calculating in map work, must recall information a lot, important that learners understand their work, don't think that this is a bad thing.	Social Sciences is content driven and requires memorization of information

	31. in map work. So yes, they must recall information a lot. 32. It is very important that learners understand their work. I 33. don't think that this is a bad thing at all. 34. Researcher: What about the underuse of problem solving, 35. evaluating and summarizing? Why are these underused? 36. Participant 2: I do use these methods sometimes. I mostly 37. focus on the basics first, then I will try to bring in problem- 38. solving. I think that when it comes to evaluating, it is very 39. open to interpretation. The learners can share ideas, but 40. it can be very time consuming to mark a learner's opinion.	Use these methods sometimes, focus on the basics first, evaluating open to interpretation, time consuming to mark a learner's opinions.	Focuses on basics. Belief that these methods are time consuming due to openness of interpretations.

	41. Researcher: Learners indicated overwhelmingly that you 42. give similar activities to all learners. Why is this done? 43. Participant 2: In my class, learners are provided with 44. activities on a daily basis. These activities are mostly from 45. the textbook, which they all must do. So they are all doing 46. the same activity. It makes sense for me, that when I mark 47. the activity, I can see who is struggling. If they are all doing 48. different things, it can get confusing. 49. Researcher: How do you accommodate gifted learners or 50. learners with barriers if all learners receive similar	Activities on a daily basis, mostly from textbook, all do the same activity, I can see who is struggling, all doing different things, it can get confusing.	All learners do similar activities from textbook in order to see which learners are struggling. Different activities will cause confusion. Marking similar activities makes it easier to identify problems.

	51. activities? 52. Participant 2: Oh, I wasn't sure about this. Well in this 53. case regarding gifted learners, I try to accommodate them 54. where I can. Also the ones who are struggling. It's just that 55. we have so many learners in the classroom now that we as 56. teachers can't get to all of our learners to help. 57. Researcher: A large percentage of learner responses 58. indicated that their answers should correspond with that 59. of the textbook, thus hampering their originality. Why is 60. this done? 61. Participant 2: I am going to be forward. The learners	Try to accommodate them, so many learners in classroom, can't get to all learners to help.	Willingness to try and accommodate, but classroom size is an issue.

	must 74. learn from me. 75. Researcher: What about other strategies that are 76. underused, like mind maps, essays, group work, role play, 77. field trips and debates? Why are these not used? 78. Participant 2: Well with essays, it takes way too long to 79. mark. A lot of opinions that I must read through. We can't 80. go on field trips a lot due to funding issues. I feel that 81. debates, role-plays and group work are strategies that 82. cause disruption in my classroom. 83. Researcher: According to the data, it appears that you	learn from me. It takes way too long to mark, lot of opinions I must read through, can't go on field trips a lot due to funding issues, role-plays and group work cause disruption.	instruction and that teacher holds all knowledge. Learner-centred methods not used due to belief that these will cause disruption and are time consuming and requires funding.

	84. nurture learner originality the most. Why and how do you 85. manage to do this? 86. Participant 2: I am not too sure, perhaps my learners are 87. just very original. It is maybe because I am willing to listen 88. to them, they feel open to discuss issues with me. 89. Researcher: According to the learner responses, it 90. indicated that the learners who are taught in English were 91. more positive with their scrutiny of their teacher's 92. teaching strategies for promoting creative thinking as opposed to 93. the Afrikaans learners. Why do you think this is the case? 94. Participant 2: I am not too sure. Maybe at our	Learners are just very original, I am willing to listen, they feel open to discuss issues with me. Not too sure, at our schools teachers are	Belief that learners are already original and that an open class climate promotes originality. Teacher willingness to listen. Teachers are more willing to adapt

	schools, we 95. as teachers are more willing to try new methods. We try 96. not to restrict ourselves here. 97. Researcher: Data obtained suggested that township 98. school teachers do not foster flexible thinking and 99. originality as much and as good as Ex-Model C or private 100. school teachers do. Why is this so? 101. Participant 2: Not an easy question. These other schools 102. have more qualified teachers, so they know what to do 103. when it comes to developing thinking.	more willing to try new methods. We try not to restrict ourselves. Other schools have more qualified teachers, they know what to do.	their teaching and learning methods and are not restrictive. More qualified and knowledgeable teachers in Ex-Model C and Private Schools.

PARTICIPANT C

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT C (EX-MODEL C)	OPEN CODES	AXIAL CODES
This teacher was open to my questions. She seemed to be very knowledgeable and willing to share her thoughts.	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 3: Taught Social Sciences for 20 years, also back 4. when the subjects were split between History and 5. Geography. 6. Researcher: How would you define the term “creative 7. thinking”? 8. Participant 3: It means to think outside of the box. Being 9. different to the person next to you. To put something new 10. into your work. 11. Researcher: According to your learners	20 years, Subjects were split between History and Geography. Think outside of the box, being different to the person next to you, put something new into your work.	Very experienced, going back to the old system when History and Geography were taught separately. Moderate understanding of creative thinking as flexibility and originality

	responses, it was 12. indicated that teachers mainly make use of the chalkboard 13. textbooks and maps during the teaching of Social Sciences. 14. Why do you think there is such an emphasis on these 15. resources? 16. Participant 3: I personally don't use the chalkboard a lot, 17. just now and then when making a few notes on the board. 18. I also think that maps are very important, so using them 19. a lot is a good thing. Again, textbooks are also important. 20. I think it has to do with what Social Sciences teachers view 21. as essential resources.	Don't use it a lot, making a few notes, maps are very important, good thing, what Social Sciences teachers view as essential resources	View certain resources as essential to teaching Social Sciences, namely textbook and maps, not the chalkboard.

	22. Researcher: Why do you think the use of political cartoons 23. and photographs is indicated as underused in the Social 24. Science classroom? 25. Participant 3: The cartoons always show something 26. controversial. I do not want to discuss these issues in my 27. class because it creates needless arguments. I prefer not 28. to use these. Photos aren't used often either, as there 29. aren't too many available. What I find I make use of it. 30. Researcher: Learner responses indicated a heavy reliance 31. on factual recall of knowledge, to motivate answers and	Cartoon show something controversial, creates needless arguments, photos aren't used often, aren't too many available.	Belief that the use of cartoons will lead to needless arguments and controversy. Resources such as cartoons and photos are not readily available.

	32. the understanding of information. Why is that? 33. Participant 3: I don't make sole use of these techniques, 34. as they don't make the learners think too much. Maybe 35. only on the first 2 levels of Bloom. So in my case, they 36. are used, but not the only ones used. 37. Researcher: What about the underuse of problem solving, 38. evaluating and summarizing? Why are these underused? 39. Participant 3: Like I said previously, I don't only make use 40. of factual recall. My activities I set include elements of 41. problem solving or even evaluating sources. But 42. answer your question, I think it has to with Social	Don't make sole use, don't make learners think, only first 2 levels of Bloom. My activities I set include elements of problem solving or even evaluating sources. Not wanting too much work, takes	Questions that focus on recall of factual knowledge are not the only questions asked, as they don't make learners think. Personally uses problem solving and evaluating, focusing on higher-order thinking. Creates too much work for teachers and

	53. Researcher: How do you accommodate gifted learners 54. and learners with barriers if all learners receive similar 55. activities? 56. Participant 3: Well in this case I don't set up different tasks 57. for these types of learners, that is simply too much work. 58. But I do make provision by setting a few higher order 59. questions in the task itself that challenges gifted learners, 60. as well as setting a few easier questions to ensure the 61. learners with barriers can answer. 62. Researcher: A large percentage of learner responses 63. indicated that their answers should correspond	Don't set up different tasks, too much work, setting a few higher order questions, challenges gifted learners, easier questions, learners with barriers can answer.	Makes provision in the same task for stronger and weaker learners by setting questions on different cognitive levels.

	with that 64. of the textbook, thus hampering their originality. Why is 65. this done? 66. Participant 3: Not in my class. Yes true, there are sections 67. that must be factually learnt, but I really try my best to 68. set papers that challenge learners. Maybe not in the sense 69. of nurturing creative thinking to a large degree, but other 70. forms of thinking as well. I think teachers are just too lazy 71. to set good papers. 72. Researcher: It appears that direct instruction is mainly 73. used in the teaching of Social Sciences, for example	Not in my class. There are sections that must be factually learnt, set papers that challenge learners, not nurturing creativity to a large degree, other forms of thinking as well. Too lazy to set up good papers.	Teacher tries to set challenging papers. Other teachers simply too lazy to set challenging papers.

	74. lecturing, repetition of information and drilling of 75. information. Why is this the case? 76. Participant 3: These methods are very teacher-centred. 77. I am surprised that teachers are mainly using these, as 78. according to my experiences, they can only go so far to 79. make learners learn meaningfully. This could be a result 80. of a comfort zone, that teachers are too “safe” and want 81. to stick with their tried and tested methods and not 82. change to other, more learner-centred methods. 83. Researcher: What about other strategies that are 84. underused, like mind maps, essays, group work, role play,	Teacher-centred, surprised, can only go so far to learn meaningfully, comfort zone, stick with tried and tested methods. Teachers are too “safe”.	Direct teaching methods cannot generate meaningful learning, and that teachers feel too comfortable and safe using them.

	85. field trips and debates? Why are these not used 86. sufficiently? 87. Participant 3: These are the learner-centred strategies I 88. was referring to in the previous question. Well I definitely 89. try to make use of these as I feel they create meaningful 90. learning situations for learners. I also think that these 91. will better develop thinking skills as well, including 92. creative thinking. Other teachers, like I said, don't want to 93. get out of their comfort zones,perhaps due to a variety of 94. factors that these strategies rely on. I know group work is 95. a problem for most teachers as learners get very	Learner-centred strategies create meaningful learning situations, better develop thinking skills, teachers don't want to get out of their comfort zones, group work is a problem, learners get very talkative. Teachers need to be brave and step out of their shells.	Belief that learner-centred methods create meaningful learning and better develop thinking skills. Learner-centred methods not used due to teachers staying in their comfort zones and that learners become talkative.

	talkative. 96. Teachers need to be brave and step out of their shells and 97. make use of these strategies! 98. Researcher: According to the data, it appears that 99. teachers are nurturing learner originality the most. Why 100. and how do you manage to do this? 101: Participant 3: It's not so difficult to nurture originality. All 102: learners are essentially original as we are all unique. So if 103: I ask them questions, they are expected to answer for 104. themselves. 105. Researcher: According to the learner responses, it was 106. indicated that English speaking learners were	Not so difficult, all learners are essentially original, all unique, answer for themselves.	Belief that all learners are essentially original and that it is easy to foster this.

	more 107. positive with their scrutiny of their teacher's teaching 108. strategies for nurturing creative thinking as opposed to the 109. Afrikaans learners. Why do you think this is the case? 110: Participant 3: I personally feel that it is a cultural thing. 111. My Afrikaans culture places a big emphasis on respect 112. and adult authority. Obviously this means that Afrikaans 113. teachers tend to make use of more authoritative 114. methods when teaching and the learners do not like it. 115. Researcher: Data obtained suggested that Ex-Model C	Cultural thing, Afrikaans culture a big emphasis on respect, adult authority, authoritative methods, learners do not like it.	Afrikaans culture places emphasis on respect for adults. Application of teaching methods linked to culture.

	116. teachers do not foster flexible thinking and originality 117. in their learners as much as private school teachers do. 118. Why is this so? 119. Participant 3: I am not 100% sure of this question. The 120: Private Schools in my opinion have stronger learners than 121. what we have here in the public schools, so maybe they 122. can develop flexible thinking and originality a whole lot 123. easier than the public schools can.	Private Schools have stronger learners, whole lot easier.	Private Schools have stronger learners, makes work easier. Fostering creative thinking linked to learners who are strong. Implication that it is not possible to nurture creative thinking among all learners.

PARTICIPANT D

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT D (EX-MODEL C)	CODES	AXIAL CODES
The teacher was very defensive in some instances, but was still open enough to answer my questions	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 4: I have been teaching now for 1 year. 4. Researcher: How would you define the term creative 5. thinking? 6. Participant 4: It's all about thinking out of the box. Creating 7. new things while thinking. 8. Researcher: According to your learners' responses, it was 9. indicated that teachers mainly make use of the chalkboard, 10. textbooks and maps during the teaching of the	1 year Thinking out of the box, new things while thinking	Inexperienced teacher Partial understanding of creative thinking as originality and flexibility

	subject. 11. Why do you think there is such an emphasis on these 12. resources? 13. Participant 4: There are no other resources available. We 14. might have these other fancy resources, but we don't have 15. time to use them. There aren't finances for Social Sciences, 16. we don't even have textbooks. All we use is copied papers. 17. Researcher: Why do you think the use of political cartoons 18. and photographs is indicated as underused in the Social 19. Science classroom? 20. Participant 4: Its because the children understand these	No other resources available, fancy resources but don't have time to use them, aren't finances for Social Sciences, don't even have textbooks Understand resources incorrectly, based on	Time constraints as well as financial constraints negatively affect use of resources

	21. resources incorrectly or their understanding is based on 22. what their parents tell them. It can bring up anger in 23. discussions, so it's difficult. Photos have to be used very 24. diplomatically. I am scared to use them. We also don't 25. have many cartoons, there are here and there. I don't 26. find cartoons to be useful. Unless the department says we 27. must use cartoons, I never use them. 28. Researcher: Learner responses indicated a heavy reliance 29. on the factual recall of knowledge, to motivate answers 30. to questions and the understanding of information. Why	what parents tell them, bring up anger, it's difficult, used diplomatically, scared to use them, unless department says we must use them, I never use them Department prescribes activities, what they	Particular resources are viewed as controversial and difficult to use, due to misconceptions and must be used diplomatically.

	53. Researcher: How do you accommodate gifted learners 54. or learners with barriers if all learners receive similar 55. activities? 56. Participant 4: This is difficult. There is 40+ learners in a 57. class, so you just try to get through the work so that the 58. majority understands it. I do try to explain as simply as I 59. can. I also don't have the time to accommodate each and 60. every one of the learners. Some learners do come after 61. class and ask me questions, but during teaching, it's not 62. possible. With gifted learners I give them extra work, as	same activities, assess group. Difficult, too many learners in classes, get through so majority understands, explain simply, don't have time, come after class to ask questions, give extra work for faster learners.	activities Logistical constraints to accommodate different learners.

	63. they work faster than other learners. 64. Researcher: A large percentage of learner responses 65. indicated that their answers should correspond with that 66. of the textbook, thus hampering their originality. Why is 67. this done? 68. Participant 4: It doesn't work that way with us. This is only 69. true for dates and facts, where they need to memorize the 70. information. We here are open with our questions, like 71. with our memos we indicate "any other relevant answer". 72. Our facilitator also moderates our papers, and they look 73. for open questions.	Doesn't work that way, only true for dates and facts needed to memorize, open questions, any relevant answer, moderate papers	Examination and test papers that make use of open questions, only limited dates and facts

	74. Researcher: It appears that direct instruction is mainly 75. used in the teaching of Social Sciences, for example 76. lecturing, repetition of information and drilling of 77. information. Why is this the case? 78. Participant 4: Convenience. Its just so much easier to 79. stand in front and preach, than putting all this effort into 80. other things. There are also sections in which learners 81. simply do not like the content, so why put all that effort 82. into something if they won't appreciate it? It's also just so 83. much easier to maintain discipline this way. With other 84. activities, like role-play, it turns into chaos.	Convenience, much easier to preach, effort into other things, do not like content, they won't appreciate it, easier to maintain discipline, turns to chaos.	Less effort and more discipline when utilizing direct instruction

	85. Researcher: What about other strategies that are 86. underused, like mind maps, essays, group work, role play, 87. field trips and debates? Why aren't these used? 88. Participant 4: Besides for the chaos it causes? It's time- 89. consuming. It takes way too much time to set these up. 90. When they are put in groups it turns to chaos, you cant get 91. to all of the groups. It wastes a period before they get to 92. their own conclusions. In my B class we like having 93. discussions, and they enjoy it, but the fact is they are 94. smarter than the other classes I have. There's more	Chaos, time consuming, too much time to get to all groups, wastes a period, smarter than other classes, more discipline in that class.	Disciplinary and time constraints , as well as preferential treatment to specific classes

	95. discipline in that class. With my other classes it just 96. doesn't work. 97. Researcher: According to the data, it appears that you 98. nurture learner originality the most. Why and how do you 99. manage to do this? 100. Participant 4: During class time? Usually I tell them the 101. whole story and afterwards we ask them "How do you 102. feel about this?", "Why do you think this and this 103. happened?". I think that is how we do it, to make them 104. think for themselves, no matter if its right or wrong. My 105. A and B classes are very opinionated. I enjoy	Tell them the story, How do you feel about this?, Why do you think this happened?, think for themselves, no right or wrong, specific classes more opinionated, opinions must be based on fact.	The incorporation of open questions in which learners can voice their opinions.

	hearing 106.their opinions, but it must be based on fact. 107. Researcher: According to the learner responses, it 108. indicated that the learners taught in English were more 109. positive with the scrutiny of their teacher's teaching 110. strategies for promoting creative thinking as opposed to the 111. Afrikaans learners. Why do you think this is the case? 112. Participant 4: It could be because of certain sections of 113. the history. Its more politically correct to just basically 114. cover the work on Apartheid and not flare up any 115. emotions through discussions. As an Afrikaner,		
		Certain sections of History, politically correct to just barely	Specific racial and historical reasons, as to prevent flare of

	I also 116. don't want to talk about it. Also, the different race 117. groups all have differing opinions, which can be 118. dangerous. So at white schools they just don't talk about 119. it, they just get it over with as quickly and as painlessly as 120. possible. 121. Researcher: Data obtained suggested that township 122. school teachers do not foster flexible thinking in their 123. learners as much and as good as Ex-Model C or private 124. schools do. Why is this so? 125. Participant 4: The Private Schools have smaller classes, 126. more resources and they have more money to	cover work, flare up emotions, as Afrikaner I don't want to talk, white schools just get it over with as quick as possible.	emotions which leads to poor quality teaching.

	spend in a 127. class for History or Geography. They can afford to take 128. them on trips to museums. We here just don't have the 129. time or the money to do these things. There is more 130. individual attention in those schools. If I had 15 in a class, 131. things would be so different compared to the 45+ I have 132. now.	Smaller classes, more resources, more money, afford to take on trips, we don't have time or money, individual attention, things would be easier if there were smaller classes	Variety of logistical and financial benefits that the Private Schools have over Ex-Model C Schools.

PARTICIPANT E

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT E (PRIVATE SCHOOL)	CODES	AXIAL CODES
This teacher was very young, but could easily share her experiences.	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 5: I have been teaching this learning area for a 4. year now. 5. Researcher: How would you define the term creative 6. thinking? 7. Participant 5: Thinking creatively is not just about creative 8. works or products. Its about thinking outside of the box	1 year Not just about works or products, outside the box, come up with own views.	Inexperienced teacher Creativity as fluency and originality

	9. and being able to come up with your own views. 10. Researcher: According to your learners' responses, it was 11. indicated that teachers mainly make use of the 12. chalkboard, textbooks and maps during the teaching of 13. the subject. Why do you think there is such an emphasis 14. on these resources? 15. Participant 5: Visual sources are always important. In 16. Social Sciences we do need to use maps. The chalkboard, I 17. do not use it that much, maybe just to write down a few 18. notes. I think it would be nice to show learners audio-	Visual sources important, need to use, don't use that much, few notes, nice to show them, easiest way out to use textbook.	Emphasis on use of visual sources

	19. visual media on certain topics. I think the easiest way out 20. is for teachers to just use the textbook. 21. Researcher: Why do you think the use of political cartoons 22. and photographs is indicated as underused in the Social 23. Science classroom? 24. Participant 5: Political cartoons I only use when I'm testing 25. the learners, so they can apply their knowledge. 26. Photographs are also a really good resource. The 27. textbooks also provide photographs. If we could get more 28. from the internet, I would use them more frequently.	Only use when I'm testing, apply knowledge, also a really good source, textbook provides, could get more from internet, use more frequently	Use of resources in testing application of knowledge. Availability prevents use of resources.

	29. Researcher: Learner responses indicated a heavy reliance 30. on the factual recall of knowledge, to motivate answers 31. to questions and the understanding of information. Why 32. is this the case? 33. Participant 5: When we go to our district meetings the 34. facilitator always brings up this issue. I think it could be 35. due to the fact that in Grade 9 it is their last year with it, 36. so more emphasis is placed on subjects that they will 37. choose in Grade 10. We do place more emphasis on	District meetings always bring up issue, Grade 9 last year, emphasis on Grade 10 subjects, Geography, low standard, get through work quickly, to move on	Lower standards as prescribed by department. Emphasis on FET level subjects only.

	38. Geography. I think why we sit with such a low standard is 39. because teachers just want to get through the work as 40. quickly as possible, just to move on. 41. Researcher: What about the underuse of problem- 42. solving, evaluating and summarizing? Why are these not 43. used? 44. Participant 5: I think it would be useful to make use of 45. problem solving in a case study. Applying their knowledge 46. in a more critical way would be advantageous to learners. 47. It does take effort to set these activities up, so	Useful to use in a case study, apply knowledge, critical way, advantageous, effort to set up, focus on matric subjects	Advantageous outlook on using problem solving when applying knowledge.

	maybe 48. teachers only focus on subjects that they know learners 49. will take up to matric. 50. Researcher: Learners indicated overwhelmingly that 51. you give similar activities to all learners. Don't you think 52. that this will hamper creative thinking? 53. Participant 5: I do give similar activities, as all learners 54. need to be assessed on the same level of understanding. I 55. need to be able to tell from a standard assessment who is 56. progressing and who is not progressing. That is my	Do give similar activities, all need to be assessed on the same level, standard assessment, progressing	Effort in setting up activities.

	57. reasoning behind similar activities. 58. Researcher: How do you accommodate gifted learners 59. or learners with barriers if all learners receive similar 60. activities? 61. Participant 5: I do make provision for this, in the sense 62. that gifted learners will usually come and present their 63. work, like a poster or something, to the class, while the 64. weaker or slower learners will take that opportunity to 65. finish their work and to maybe discuss with their peers to 66. get help.	Do make provision, come and present work, weaker learners then complete work, discuss with peers for help	Focus on standard assessment for progression purposes.

	67. Researcher: A large percentage of learner responses 68. indicated that their answers should correspond with that 69. of the textbook, thus hampering their originality. Why is 70. this done? 71. Participant 5: I think that with map work it has to 72. correspond to their textbook or the theory they have been 73. taught. Even in the History part they are expected to 74. analyze events from a period. What we do allow is 75. variation in their essay questions, their opinion on an	Map work must correspond with textbook, theory they have been taught, analyze events, variation in essay questions, opinion on events, just basic information given to them, content driven.	Provision made when learners present their own work, discussions with peers.

	76. event in History. Learners also don't really know what its 77. like in a place like Sudan, so they just have basic 78. information given to them from a textbook. The work is 79. content driven. 80. Researcher: It appears that direct instruction is mainly 81. used in the teaching of Social Sciences, for example 82. lecturing, repetition of information and drilling of 83. information. Why is this the case? 84. Participant 5: Like I said before it is content driven. Class 85. discussions do work, but some learners may become	Content driven, discussions do work, become bored, erupt into chaos, as much work quickly as possible, don't watch the news, teacher	Theoretical work must correspond with textbook, variation in answers allowed in essay question.

	95. field trips and debates? Why aren't these used? 96. Participant 5: There is value in these methods, like in 97. debates it forces them to think differently. Group work, it 98. does help but with stuff like map work they should do it 99. individually. Field trips are really engaging, learners can 100. get to see the content they are taught in real life. 101. Researcher: According to the data, it appears that you 102. nurture learner originality the most. Why and how do 103. you manage to do this? 104. Participant 5: I think when I do it the most is	forces them to think differently. Group work helps, map work done individually, really engaging, see content in real life. When learners come to the front and discuss, their way gets other learners to understand, their responses show being more critical, opportunity to think for themselves, own opinion.	promote the use of teacher-centred methods. Value in using learner-centred methods which include flexible thinking and engagement. The nurturing of originality by allowing opinions, opportunity to think for themselves and peer discussion.

	when 105. learners come to the front and discuss. Their way of 106. conveying information might get other learners to 107. understand more. I see in their responses that they are 108. being a bit more critical. its also important that learners 109. be given the opportunity to think for themselves. Like in 110. History, they should have their own opinion on events. 111. Researcher: According to the learner responses, it 112. indicated that the learners taught in English were more		

	113. positive with the scrutiny of their teacher's teaching 114. strategies for promoting creative thinking as opposed to the 115. Afrikaans learners. Why do you think this is the case? 116. Participant 5: When you think of Afrikaans culture one 117. tends to think of order and formality. There aren't that 118. many Afrikaans speaking schools left, so there might be 119. more tradition there. Unlike the English schools which 120. are the majority now, they may have an open 121. environment. 122. Researcher: Data obtained suggested that	Afrikaans culture think of order and formality, aren't many Afrikaans schools left, more tradition, English schools have open environment.	Afrikaans culture regarded as very traditional and formal.

	township 123. school teachers do not foster flexible thinking in their 124. learners as much and as good as Ex-Model C or private 125. schools do. Why is this so? 126. Participant 5: I think with the Township Schools, not to be 127. biased, are maybe more concerned with day to day 128. running of the school with discipline and finance. Maybe 129. their teachers simply want to get through the work as 130. quickly as possible. I think at Private Schools the parents 131. pay a lot of money for their children and they	Concerned with running of school, with discipline and finance, get through work quickly, pay a lot of money, expect results, environment less stressful, open learning environment.	Higher expectations placed on Private Schools due to better learning environment and better finances.

	expect 132. results, they want their children to go to university. 133. Maybe also the environment is less stressful in a private 134. school, more of an open learning environment.		

PARTICIPANT F

REFLECTIVE NOTE	TRANSCRIPT: PARTICIPANT F (PRIVATE SCHOOL)	CODES	AXIAL CODES
The teacher readily shared her ideas regarding most of the questions.	1. Researcher: How many years of experience do you have as a 2. Social Sciences teacher? 3. Participant 6: 3 years experience now. 4. Researcher: How would you define the term creative 5. thinking? 6. Participant 6: I believe it has to do with bringing out the 7. personality of each of my learners, to accept that everyone 8. is different. 9. Researcher: According to your learners'	3years Bringing out personality, everyone is different	Inexperienced teacher Creative thinking as originality and flexibility

	responses, it was 10.indicated that teachers mainly make use of the chalkboard, 11. textbooks and maps during the teaching of the subject. 12. Why do you think there is such an emphasis on these 13. resources? 14. Participant 6: Because they have them. Schools are limited 15. to what you can afford. We don't even have chalkboards. I 16. resort to paper so that learners can see and hear the 17. information. 18. Researcher: Why do you think the use of political cartoons	They have them, limited to what you can afford, don't even have, resort to paper	Limited availability and cost of resources forces teachers to use basic resources

	19. and photographs is indicated as underused in the Social 20. Science classroom? 21. Participant 6: I don't think teachers do not want to use 22. these sources, its again based on availability and 23. affordability. If I come across something interesting I bring 24. it to school, but what is the likelihood that I will find 25. something relevant to schoolwork when I'm busy with it in 26. class? There is value in using these things, but it comes at 27. a cost. 28. Researcher: Learner responses indicated a	Based on availability and affordability, bring interesting things to school, likelihood of finding things, value in using it, cost	Availability and affordability prevent use of better resources

	heavy reliance 29. on the factual recall of knowledge, to motivate answers 30. to questions and the understanding of information. Why 31. is this the case? 32. Participant 6: Well firstly there is a lot of extra work 33. involved over the work you are currently busy with. 34. Unfortunately as a teacher, you are bound by such 35. bureaucracy, with all the little things you have to be busy 36. with, that sometimes you sacrifice the little extra you 37. could have done. The other thing again is cost,	Lot of extra work, bound by bureaucracy, little things you are busy with, sacrifice the little extra, could have done, cost, could do wonderful things, spend hours	Logistical and financial reasons as to why lower order activities are mainly used

	cost, cost. I 38. could do wonderful things, but I have to spend hours at 39. home to make whatever. 40. Researcher: What about the underuse of problem- 41. solving, evaluating and summarizing? Why are these not 42. used? 43. Participant 6: The way I explain something to learners is to 44. make it relevantly understandable. I always try to bring 45. real life into it, instead of just theoretical words. The 46. emphasis is therefore what does it mean to you? This	Explain try to make it understandable, bring real life into it, theoretical words, what does it mean to you, lies more on basic way	Belief that higher order activities are important, but school system stifles attempts

	47. school unfortunately lies more on the basic, theoretical 48. way of teaching. 49. Researcher: Learners indicated overwhelmingly that 50. you give similar activities to all learners. Don't you think 51. that this will hamper creative thinking? 52. Participant 6: We give them similar activities, but the 53. curriculum we follow is very different. In our curriculum 54. the learner comes first. It is a very indirect system we use 55. here. We aren't so much teachers as we are facilitators. I 56. personally feel that the activities we give out,	Give similar activities, curriculum is different, learners come first, indirect system, we are facilitators, activities we give can grow creativity among individuals, if you aren't creative your creativity cant develop	Justification for giving similar activities, which include indirect curriculum, and individual creativity

	although 57. similar, can grow creative thinking amongst individual 58. learners. You can never totally squash creative thinking. If 59. you are a creative thinker you will always think creatively, 60. but if you aren't that creative your creative thinking cant develop. 61. Researcher: How do you accommodate gifted learners 62. or learners with barriers if all learners receive similar 63. activities? 64. Participant 6: With this curriculum, a learner progresses at 65. his or her own rate. One Grade 9 is not		

	necessarily on the 66. same level as another Grade 9. If a learner is faster, they 67. can finish their schooling 1 to 2 years ahead of the normal 68. system. That is how this system rewards you. If you are 69. slower, I do feel our system is a bit unforgiving. 70. Researcher: A large percentage of learner responses 71. indicated that their answers should correspond with that 72. of the textbook, thus hampering their originality. Why is 73. this done? 74. Participant 6: This system requires it, but I am personally	Learner progresses at own rate, not on the same level, fast learner finish schooling quicker, rewards you, if slower system is unforgiving	Focus on individual progress of learner at own rate
		System requires it,	Systemic or

	75. against it. I believe that learning has taken place if you can 76. answer in your own words the substance of the content, 77. rather than just a parrot repeat everything. In this system 78. if it isn't the same word, it is regarded as wrong. 79. Researcher: It appears that direct instruction is mainly 80. used in the teaching of Social Sciences, for example 81. lecturing, repetition of information and drilling of 82. information. Why is this the case? 83. Participant 6: We don't do that at all here. Our curriculum 84. encourages learners to read, to recap and to make notes.	personally against it, learning takes place if you answer in your own words, parrot repeating, isn't same word it is wrong Don't do that at all, curriculum encourages reading, recap, make notes, same thing again and again, facilitate learning, encouraged not to	departmental requirements result in rote learning Focus on indirect instruction and facilitation as directed by the

	85. So its not that they have to do the same thing again and 86. again. If learners are struggling, it is my task to facilitate 87. that learning takes place. We here are encouraged not to 88. teach or to correct but to facilitate. To lead them so that 89. they discover for themselves. 90. Researcher: What about other strategies that are 91. underused, like mind maps, essays, group work, role play, 92. field trips and debates? Why aren't these used? 93. Participant 6: Many things come to mind. All those 94. methods you mentioned are slightly disruptive.	teach, lead them, discover for themselves Many things, methods are disruptive, authorities from school	curriculum Discipline issues when using methods, difficult to incorporate into

	As soon as 95. there is disruption, the authorities from the school may 96. come to question you. Next, it is hard to pen those 97. methods into a curriculum. Kids use and abuse these kinds 98. of things. 99. Researcher: According to the data, it appears that you 100. nurture learner originality the most. Why and how do 101. you manage to do this? 102. Participant 6: In the first place I try to know my learners. 103. I Also want them to realize that I see each and every one	will question you, hard to pen methods into curriculum, kids use and abuse these things Know my learners,	curriculum Personal and individual treatment of learners

	104. of them as an individual. I don't treat you according to 105. the last four demerits you got. I don't want to put you in 106. that box. One shouldn't be too harsh on teachers, as no 107. one wants to be a policeman who shouts at learners all 108. the time. 109. Researcher: According to the learner responses, it 110. indicated that the learners taught in English were more 111. positive with the scrutiny of their teacher's teaching 112. strategies for promoting creative thinking as opposed to the	want them to realize they are individuals, put you in that box, too harsh on teachers, don't want to be policeman shouting	according to their merit

	113. Afrikaans learners. Why do you think this is the case? 114. Participant 6: I don't necessarily view that as a bad thing. 115. The discipline in Afrikaans schools is better. That's a fact, 116. its not a guess. More learning gets done and more kids 117. pass. That is because Afrikaans is traditionally a nation of, 118. shall I say, rules. There has always been boxes that you 119. have to fit in, and unfortunately creativity does not fit in 120. there. I have found English people to have a much more 121. free approach. I feel that nurturing	Do not view it as bad, discipline in Afrikaans schools better, fact not a guess, more learning is done, nation of rules, boxes you must fit in, creativity does not fit in, English have free approach, nurturing creativity might cost work ethic	Afrikaans culture based on rules and regulations which leads to better discipline in their schools

	creativity might end 122. up costing you the work ethic side and in responsibility. 123. Researcher: Data obtained suggested that township 124. school teachers do not foster flexible thinking in their 125. learners as much and as good as Ex-Model C or private 126. schools do. Why is this so? 127. Participant 6: The best thing I can say about this school is 128. that it nurtures the learner's ability to learn by himself. 129. I may not like the system in which your answer must be 130. like the textbook, but our pass rate is very	Nurtures learner's ability Do not like system in which answer must be like the textbook	System requires a very high standard from their learners, and majority pass

	high and our 131. requirements are 80% or you don't pass. In this system it 132. is actually very strange for someone to fail.	Pass rate is very high Requirements are 80% or you do not pass	

		Nurture learners' ability to learn by himself, may not like the system, answers like textbook, pass rate high, 80% or don't pass, failure is very	

		strange.	

APPENDIX F

GROUPING OF CODES INTO THEMES

Interview content analysis: Grouping of codes into themes

1. How many years of experience do you have as a Social Sciences teacher?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
He/she is an experienced teacher	He/she is moderately experienced	Very experienced, going back to old system when History and Geography were taught separately	Inexperienced teacher	Inexperienced teacher	Inexperienced teacher	Experience level of Grade 9 Social Sciences teachers

2. How would you define the term “creative thinking”?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Partial understanding of creative thinking being originality and open minded	Partial understanding of creativity as being original	Moderate understanding of creative thinking as flexibility and originality	Partial understanding of creative thinking as originality and flexibility	Creativity defined as fluency and originality	Creative thinking as originality and flexibility	Social Sciences teachers' definition of creative thinking

3. According to your learners' responses, it was indicated that teachers mainly make use of the chalkboard, textbooks and maps during the teaching of Social Sciences. Why do you think there is such an emphasis placed on these resources?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
The use of resources that limits the development of critical thinking is linked to a lack of finances	Ease of use of particular resources, justification for use due to availability and access	View certain resources as essential, uses textbook and maps, not chalkboard	Time constraints as well as financial constraints negatively affect use of resources	Emphasis on use of visual sources	Limited availability and cost of resources force teachers to use basic resources	Various financial and logistical reasons for use of basic resources

4. Why do you think the use of political cartoons and photographs is indicated as underused in the Social Sciences classroom?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Teachers not competent in using cartoons and photographs to stimulate creative thinking	Willingness to use resources, but financial issues prevent their use	Belief that sources create needless arguments and controversy, sources aren't readily available	Particular resources such as cartoons are viewed as controversial and difficult to use, due to misconceptions and must be used diplomatically	Use of cartoons to test application of knowledge Internet access would promote the use of photographs	Availability and affordability prevent use of better resources such as cartoons and photographs	Financial and logistical reasons for underuse of other resources Negative outlook and incompetence in the use of other resources

5. Learner responses indicated a heavy reliance on the factual recall of knowledge, to motivate answers to questions and the understanding of information. Why is this the case?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Belief that learners must have basic knowledge and skills	Social Sciences is content driven full of facts and dates and requires memorization of information	Not the only questions asked, as they do not make learners think.	Defensive statements made towards department of education, as they prescribe lower-order activities.	Lower standards due to the fact that teachers just want to get through the work Emphasis on FET-level subjects and Geography	Logistical and financial reasons as to why lower order activities are mainly used Large volume of work make teachers resort to recall of factual knowledge	Content driven nature of the learning area. Prescription of activities on the systemic level.

6. What about the underuse of problem solving, evaluating and summarizing? Why are these not used?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Teachers not competent in the creation of problem solving activities	Focuses on basics. Belief that methods are time consuming due to openness of interpretations	Personally uses higher-order questions. Creates too much work for teachers and requires effort	Discrepancy between cognitive level of Grade 9 and 10	Advantageous outlook on using problem solving when applying knowledge. Effort in setting up activities.	Belief that higher order activities are important, but school system stifles attempts	Incompetency, logistical and systemic issues regarding the underuse of higher-order activities

7. Learners indicated overwhelmingly that you give similar activities to all learners. Will this not hamper creative thinking?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Reliance on norm-referenced assessment	All learners do activities from textbook in order to see which learners are struggling Different activities will cause confusion Marking similar activities makes it easier to identify problems	Believes that learners must be given same work to compare understanding. Does vary type of task given	Prescriptions from department control the giving of similar activities to learners	Focus on norm-referenced assessment for progression purposes.	Justification for giving similar activities, which include indirect curriculum, and individual creativity Acknowledge importance of teachers who have to be creative themselves in order to nurture creativity	Focus on norm-referenced assessment in order to compare learner understanding. Curriculum prescriptions require similar activities.

8. How do you accommodate gifted learners or learners with barriers if all learners receive similar activities?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Various reasons for not using other methods such as time & demands in completing work Providing individual assistance	Willingness to try and accommodate, but classroom size is an issue	Makes provision in the same task for stronger and weaker learners Setting questions on different cognitive levels	Logistical constraints to accommodate different learners such as classroom size and time hamper the accommodation of learner needs	Provision made when learners present their own work, or in discussions with peers.	Focus on individual progress of learner at own rate	Classroom size creates logistical problems. Provision made in the task for weaker and stronger learners.

9. A large percentage of learner responses indicated that their answers should correspond with that of the textbook, thus hampering their originality. Why is this done?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Belief that more challenging tests will cause learners to fail	Belief that learners remember better from textbook. Setting tests this way makes marking faster	Teacher tries to set challenging papers. Other teachers simply too lazy to set challenging papers	Memorization applicable to dates and facts only. Open questions provided to allow for any relevant answer	Theoretical work must correspond with textbook, variation in answers allowed in essay question. Social Sciences very much content driven	Systemic or departmental requirements result in rote learning	Departmental requirements require rote learning. Laziness of teachers in setting up exam papers. Belief of teachers that rote learning is easier for learners

10. It appears that direct instruction is mainly used in the teaching of Social Sciences, for example lecturing, repetition of information and drilling of information. Why is this the case?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Direct instruction easier to use and can maintain class discipline	Belief that direct methods get learner attention, learners learn better. Belief that teacher holds all knowledge	Belief that direct methods cannot generate meaningful learning, and that teachers feel too comfortable and safe using them	Less effort and more discipline when utilizing direct instruction	Logistical, time as well as disciplinary constraints that promote the use of teacher-centred methods.	Focus on indirect instruction and facilitation as directed by the curriculum Learning through discovery encouraged	Ease of maintaining discipline and using direct methods. Direct methods do not generate meaningful learning.

11. What about other strategies that are underused, like mind maps, essays, group work, role-play, field trips and debates? Why are these used?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Various logistical and discipline reasons for not using other methods such as time & to avoid disciplinary problems.	Various logistical and financial issues that prevent learner-centred methods from being used Learner-centred methods not used due to belief that it will cause disruption & are time consuming & requires funding. Choice of strategies linked to ability of and discipline among learners.	Belief that these methods create meaningful learning, better develop thinking skills. Learner-centred methods not used due to teachers staying in their comfort zones & that learners become talkative.	Disciplinary and time constraints, as well as preferential treatment to specific classes who are smarter than others. Apparent lack of knowledge to implement group work.	Value in using learner-centred methods which include flexible thinking and engagement and authentic learning.	Discipline issues when using methods that promote active learner involvement. Learners abuse teaching methods where they are actively involved.	Discipline, time and finance issues prevent use of strategies. Particular strategies develop thinking skills.

12. According to the data, it appears that township teachers nurture learner originality the most. Why and how do they manage to do this?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Friendly classroom climate. Open classroom climate.	Belief that learners are already original, and that an open class climate promotes originality. Teacher willingness to listen to learners.	Belief that all learners are original and that it is easy to foster this	The incorporation of open questions in which learners can voice their opinions.	The nurturing of originality by allowing opinions, opportunity to think for themselves and peer discussion.	Personal and individual treatment of learners irrespective of their demerits.	Open classroom climate fosters originality. Belief that all learners are original.

13. According to the learner responses, it indicated that the learners taught in English were more positive with the scrutiny of their teacher's teaching strategies for promoting creative thinking as opposed to the Afrikaans learners. Why do you think this is the case?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Learners can interact better Afrikaans culture much more stricter	Teachers are more willing to adapt teaching and learning methods Teachers are not as restrictive as Afrikaans teachers	Afrikaans culture places emphasis on respect for adults Application of teaching methods linked to culture	Specific racial and historical reasons, as to prevent flare of emotions which lead to poor quality teaching	Afrikaans culture regarded as very traditional and formal Culture viewed as a factor that influences the nurturing of creativity	Afrikaans culture based on rules and regulations which leads to better discipline in their schools English schools have a more open approach Misconception that nurturing creativity holds consequences for ethics and responsibility	Afrikaans culture viewed as restrictive and traditional Historical issues prevent Afrikaans teachers from fully teaching certain content

14. Data obtained suggested that township schoolteachers do not foster flexible thinking in their learners as much and as good as Ex-Model C or Private Schools do. Why is this so?

Participant A	Participant B	Participant C	Participant D	Participant E	Participant F	Theme
Lack of creative thinking caused by financial and funding issues, and a lack of resources	Under qualified teachers in Township Schools, not sure of what to do More qualified and knowledgeable teachers in Ex-Model C and Private Schools	Private Schools have stronger learners, makes work easier Fostering creative thinking linked to learners who are strong Implication that it is not possible to nurture creative thinking among all learners	Variety of logistical and financial benefits that the Private Schools have over Ex-Model C Schools, such as money to afford field trips and smaller classes that promote individual attention	Higher expectations placed on Private Schools due to better learning environment and better finances Private Schools provide less stressful and open learning environments	Private school system requires a very high standard from their learners, and the majority pass	Better finances, environment and resources in Private Schools. Higher standards expected in Private Schools.

APPENDIX G

ETHICS CLEARANCE

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Ethics Committee

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Dr. Mary Grosser

Dear Dr Grosser

21 Oktober 2008

ETHICS APPROVAL OF PROJECT

The North-West University Ethics Committee (NWU-EC) hereby approves your project as indicated below. This implies that the NWU-EC grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the project may be initiated, using the ethics number below.

Project title: Improving the critical thinking abilities of prospective teachers
Ethics number: **N W U - 0 0 3 2 - 0 8 - 5 1**
Approval date: 29 September 2008 Expiry date: 28 September 2013

Special conditions of the approval (if any): None

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, please note the following:

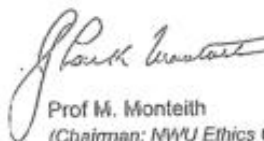
- The project leader (principle investigator) must report in the prescribed format to the NWU-EC:
 - annually (or as otherwise requested) on the progress of the project,
 - without any delay in case of any adverse event (or any matter that interrupts sound ethical principles) during the course of the project.
- The approval applies strictly to the protocol as stipulated in the application form. Would any changes to the protocol be deemed necessary during the course of the project, the project leader must apply for approval of these changes at the NWU-EC. Would there be deviation from the project protocol without the necessary approval of such changes, the ethics approval is immediately and automatically forfeited.
- The date of approval indicates the first date that the project may be started. Would the project have to continue after the expiry date, a new application must be made to the NWU-EC and new approval received before or on the expiry date.
- In the interest of ethical responsibility the NWU-EC retains the right to:
 - request access to any information or data at any time during the course or after completion of the project;
 - withdraw or postpone approval if:
 - any unethical principles or practices of the project are revealed or suspected,
 - it becomes apparent that any relevant information was withheld from the NWU-EC or that information has been false or misrepresented,
 - the required annual report and reporting of adverse events was not done timely and accurately,
 - new institutional rules, national legislation or international conventions deem it necessary.

The Ethics Committee would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the Ethics Committee for any further enquiries or requests for assistance.

Yours sincerely



Prof M MJ Lowes
(chair NWU Ethics Committee)



Prof M. Monteith
(Chairman: NWU Ethics Committee: Teaching and Learning)

From: Marietjie Halgryn
To: Mary Grosser
Date: 2008/10/08 09:21 AM
Subject: Re: Fwd: GrosserM NWU 00042 08 A2.doc - Goedgekeur

Goelomore Mary

Aansoek NWU - 0039-08-A@
Improving the critical thinking abilities of prospective teachers.

Die aansoek is ook finaal goedgekeur. Die sertifikaat sal binnekort uitgereik word.

Hoop dit is goeie nuus.

Dankie en mooi week.

Me. H.M. Halgryn (Marietjie)
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Snr Research Support Official
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>>> Mary Grosser 2008/10/03 07:21 AM >>>

Hallo Marietjie
Bale dankie hiervoor! Dis goeie nuus! Ek wil net ook graag weet wat die situasie met my ander projek is - "Improving the critical thinking abilities of prospective teachers". Ek het sover ek weet ook aan alles voldoen wat die etiek Komitee aanbeveel het, maar het nog nie finale goedkeuring ontvang nie. Dankie vir die opvolg hiervan!
Mooi dag en mooi naweek!
Mary

>>> Marietjie Halgryn 2008/09/30 09:58 AM >>>

Hello Mary

Hierdie projek van jou is ook nou finaal goedgekeur en die sertifikaat sal binnekort uitgereik word.

Die nuwe nommer is soos volg:

NWU-0042-08-A2 Die "A" status staan vir finaal goedgekeur.

Mooi week vir jou.

Me. H.M. Halgryn (Marietjie)
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