

**An analysis of the relationship between writing skills and
'Short Messaging Service' Language:
a self-regulatory perspective**

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**Thesis submitted for the degree Doctor of Philosophy
in
Learning and Teaching
at the
Potchefstroom Campus of the North-West University**

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May 2011

ACKNOWLEDGEMENTS

I dedicate this thesis to my husband and my daughter,
Matthew and Kristin Proudfoot,
without whose love, support and laughter, I am but nought.

I hereby extend my sincerest gratitude and appreciation to the following people:

- My promoter, Prof JL deK Monteith, for his hours of personal input, guidance and patience. Prof, your belief and faith that I could complete this journey often saw me through the most difficult of times and gave me the inner strength to persevere and achieve my goals.
- My co-promoter, Prof JL van der Walt, for his constant advice and language editing.
- Dr SM Ellis for her patience and assistance with the statistical section of this research.
- Prof S Blignaut for her self-sacrifice and support with the qualitative section of this study.
- Susan van Biljon for the technical editing of this thesis.
- The Department of Education: North-West Province for permission to conduct the research.
- The staff and learners of St Conrad's College (Brothers of Charity) without whom I could not have completed this thesis.
- My parents, Geoff and Dee Livingston, for their love and support throughout my academic journey. They awakened a love of knowledge in me for which I will be eternally grateful.

ABSTRACT

An analysis of the relationship between writing skills and 'Short Messaging Service' language: a self-regulatory perspective.

Self-regulation in writing is viewed as critically important in order to be a good writer. With the advent of cellular telephony, what passes as 'good' writing is being challenged with the introduction of the abbreviated form of SMS (Short Messaging Service) language. The purpose of this study was to determine the nature of the changes in SMS spelling and whether or not these changes affected the participants' spelling age and their ability to write formally within the context of a formal SMS and the English language class. This study also aimed to determine whether a relationship exists between self-regulatory skills and writing in SMS.

A sequential explanatory mixed-method research design was selected in order to address the research questions which had been posed. The study examined the nature of Short Messaging Service (SMS) language and the relationship between self-regulation and SMS, using a dominant quantitative survey design which was followed by a qualitative phase which explored and explained the phenomena which had been exposed in the quantitative phase of this study.

The results of this study indicated that SMS language is an abbreviated form of digital writing, which is colloquial and informal in nature. SMS language is used in SMS text messages and within the forum of the chatroom MXit. The results also indicated that the participants in this study use the self-regulatory strategies of goal setting, strategic planning, self-recording, self-evaluation and self-reaction when writing SMS text messages that are more formal in nature. Furthermore, no evidence of SMS language could be found in an analysis of writing portfolios, indicating that SMS language does not affect the academic writing skills of the participants in this study.

The main conclusion was that although this study was completed on a very small scale and that it would be inappropriate to generalise, the implementation of and research regarding the nature of SMS and self-regulation in SMS writing, require attention in order to ensure that the self-regulatory skills possessed by learners in our schools are used optimally in order to promote literacy and good writing practices.

KEYWORDS: short messaging service (SMS), self-regulated learning, self-regulation strategies, SMS language, writing, writing skills.

OPSOMMING

‘n Analise van die verband tussen skryfvaardighede en SMS-taal: ‘n selfregulerende perspektief

Selfregulering in skryfwerk word gesien as van kritieke belang ten einde ‘n goeie skrywer te wees. Met die ontstaan van selulêre telefonie het dit wat as “goeie” skryfwerk beskou is met die gebruik van afkortings en verkortings, gelei tot die ontstaan van die SMS (Short Messaging Service) -taal. Die doel van die studie was om die aard van die verandering van SMS-spelling te bepaal en tot watter mate dit die spelouderdom en die formele skryfvaardighede van die leerders, binne die konteks van die SMS-taalgebruik en die Engelse onderrigsituasie, beïnvloed. Die studie het ook ten doel gehad om die verband tussen selfgereguleerde vaardighede en die gebruik van SMS-taal te bepaal.

Daar is gebruik gemaak van ‘n opeenvolgend-verklarend gemengde navorsingsmetodologie om die navorsingsvrae wat gestel is te ondersoek. Die studie het die aard van SMS-taal en die verband wat bestaan tussen selfregulering en SMS-boodskappe ondersoek, deur middel van ‘n dominante kwantitatiewe opname-ontwerp, gevolg deur ‘n kwalitatiewe navorsingsfase waar die fenomeen wat blootgelê is deur die kwantitatiewe navorsingsfase ondersoek is.

Die resultate van die studie dui aan dat SMS-taal ‘n verkorte vorm van digitale skryfwerk is- wat ‘n vorm van omgangstaal en dus informeel van aard is. SMS-taal word gebruik in teksboodskappe en binne die forum van die gesprekskamer MXit. Die navorsingsresultate toon aan dat die deelnemers aan hierdie studie gebruik maak van selfgereguleerde strategieë soos doelwitstelling, strategiese beplanning, selfwaarneeming, selfevaluering en selfrefleksie wanneer meer formele teksboodskappe geskryf word. Geen voorbeelde van verkorte SMS-taal is egter in die analise van portefeulje-skryfwerk van die deelnemers in die studie gevind nie. Hieruit blyk dus dat SMS-taal nie akademiese skryfvaardighede beïnvloed nie.

Die primêre gevolgtrekking is dat hoewel die studie slegs ‘n klein hoeveelheid deelnemers betrek het en dit nie moontlik is om daaruit te veralgemeen nie, is die implementering en navorsing rakende die aard van SMS-taal en selfregulering in SMS-boodskappe van belang ten einde te verseker dat die vaardighede waarvoor leerders in ons skole beskik optimaal gebruik word om geletterdheid en goeie skryfvaardighede te bevorder.

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STATEMENT OF THE PROBLEM AND OVERVIEW OF THE STUDY

1.1 Introduction and statement of the problem

'Millennials', who were born between 1982 and 2000 are also known as 'technology natives', have been born into the fast paced world of computers, the Internet, e-mails and cell phones (Vail, 2005: 30). These learners have been exposed to technology since birth and as such can be called 'Digital Natives' (McHale, 2005). Vieux (2003) has coined the phrase DIG generation, where DIG stands for 'digital immediate gratification', a generation "on the move to all things digital, consumer electronics are changing the way we live – and think".

Research has shown that this new digitally-aware generation uses a new writing style when communicating electronically. 'Netspeak' is a digital language, which has emerged with the advent of the Internet, and features the use of abbreviations (Crystal, 2002b: 85). These features of Netspeak are often found in SMS (Short Messaging Service) language, although the obvious challenges of the cell phone's small screen has lead to the development of an even more abbreviated language that often has a rebus-like quality (Crystal, 2002b: 229). SMS language is often referred to as 'texting' colloquially (Crystal, 2002b: 141). The 'DIG' generation communicates through SMS texts, which apply vastly different criteria to texts which are not written digitally (Aw, Zhang, Xiao, & Su, 2006: 8). Although there are various forms of digital tools and a variety of written communications to be found on the Internet, this research study chiefly concerned itself with the language that is used when users communicate via cellular telephones, using SMS language.

When communicating via cellular telephones, contracting words saves time and is cost effective (Leslie, 2001: 370; Padamanabhan, 2003). Because of the ease of use and accessibility of cellular telephones and the quick manner in which one can communicate, SMSes have changed the way that people communicate (Doyle, 2003:175). Leslie (2001) explains that there are many advantages to using SMS systems, on a cellular telephone, because it is instant, reaching the recipient immediately, allowing for immediate response and that text-data can be saved and re-read at any time, thereby avoiding confusion.

Digital communication has changed the way in which we communicate with one another.

Not only do these digital interactions (e.g. email, instant messaging and SMS) allow instant contact, but they have also brought about a revolution in what is considered 'normal' or 'standard' written language.

Teachers are often concerned that the changes which are exhibited in the writing styles of learners (i.e. the Millennials or digital natives) will impact negatively on their academic writing skills or scholastic achievement. This concern is verbalised by Sathege (2005) who is of the opinion that "the use of SMS jargon instead of conventional English is becoming a nightmare in schools while an increasing number of pupils are using this 'modern and quick' writing style instead of correct English". Sathege's view is backed up by Hayslett (2006) who states that teachers are observing that students are handing in work that looks more like instant-message conversations than English assignments. Research has indicated that SMS language is used within the informal context of SMS text messaging or Internet communications. The question thus arises what the nature of SMS language is as well as whether there are changes in the conventional spelling of SMS words.

Research has also indicated a positive relationship between self-regulation and writing which has lead to the development of writing models and strategy development models. It is assumed that expert writers self-regulate their writing. What is evident from the review of literature though is the dearth of research on or information regarding the self-regulatory behaviours exhibited by learners when composing a SMS text message. As a gap exists in the existing literature regarding the self-regulation of SMS writing and the regulation of SMS language, this study aimed to establish whether the participants in this study (i.e. high school learners at a school in the North West Province) were able to self-regulate their SMS and academic writing behaviours to purposefully ensure that their academic writing and formal SMS text messages were error-free and that the register remained formal. Further more, this study aimed to identify which self-regulatory writing strategies were used by the participants in this study when composing SMS text messages, in formal or informal contexts, in order to regulate their use of SMS language.

1.2. Review of literature

Before a discussion of the effect of SMS language on writing skills in English can ensue, one must determine which variation of English is taught in schools. Two distinct variations of English are used in the classroom situation: Standard English, and the more cognitively demanding Academic English. Although both variations will be defined, for the purpose of this study, Standard English will be the focus of this study. Academic English is a cognitively demanding and decontextualised register that relies on a broad knowledge of words,

concepts, language structures and interpretation strategies and includes the skills of summarising, analysing, extracting and editing (ERIC Digest, 2000), while Standard English is 'the English we take for granted, English which is not strange or unusual or different in any way, what is sometimes referred to as the unmarked variety' and is seen as being the English taught in schools and that is used nationally, and is 'reputable and current' (Davies, 1999:171). Standard English is 'the English that with respect to spelling, grammar, pronunciation and vocabulary is substantially uniform though not devoid of regional differences, that is well established by usage in the formal and informal speech and writing of the educated, and that is widely recognised as acceptable wherever English is spoken and understood (Davies, 1999:172).

In the English classroom today, the language that the English educators use (Standard English) does not reflect the world view of their learners, a world view which is influenced by technology. These learners often converse and communicate in a form of written and spoken English that has not been standardised, called Short Messaging Service (often called 'texting'). Padmanabhan (2003) goes on to say that she does not think SMS language will replace Standard British English, but rather, will be amalgamated into language usage and will enrich, rather than destroy the language. What is needed according to Padmanabhan (2003) is a 'common code for SMS'. Rather than deny the fact that language is evolving, find a solution to the problem.

The researcher has noted that SMS language is written language which is influenced by slang, jargon and colloquialisms, hereby placing this language in direct opposition to the belief that written language should not be affected by spoken language, which is confirmed by Carrington (2005:168) who states that "Txting" (sic) is clearly constructed in direct opposition to 'legitimate' language, represented by the notion of academic English. Simplified texts cannot serve as examples of academic English (ERIC Digest, 2000).

"Writing is a continuing process of discovering how to find the most effective language for communicating one's thoughts and feelings" (Bello, 1997). SMS communication has introduced an entirely new forum for communicating one's thoughts and feelings. According to Abdullah (2003) "electronic communication (or e-communication) places new demands on language that leads to interesting variations in written language use", thus creating a new medium for the process of writing.

Process writing begins with 'pre-writing' activities which then lead to drafting or editing exercises. Editing begins when 'the focus moves to spelling, grammar, punctuation, transition words and signal words' (Bello, 1997). Cooper and Odell (1977: 38) found that writing skills can be measured using an analytical scale of analysis of skills, and the instrument

describes: 'the students' ability to use words accurately and effectively, the ability to use appropriate punctuation and the ability to spell correctly'. Good writing and the skills associated with writing can be measured and thus be taught. Krest (1987: 40) has noted that peer evaluation, peer editing, peer grading, computer programmes, conferences and a system of error analysis are ways in which students can enhance their writing skills.

Graham *et al.* (1998:22) propose that learners who find writing tasks difficult to complete, should incorporate self-regulatory processes into their writing. Self-regulation is a process by which learners transform their mental abilities into academic skills (Zimmerman, 2002) and can be defined as the manner in which a learner systematically uses metacognitive, motivational and behavioural strategies to proactively seek out information and master these strategies (Archer, 1998; Ertmer & Newby, 1996:9; Paris & Paris, 2001; Pintrich & De Groot, 1990; Zimmerman, 1990; Zimmerman, 1996:182; Zimmerman, 1998:2).

Zimmerman (2000) developed Bandura's concept of self-regulation further by distinguishing three cyclical phases: forethought (goal setting, strategic planning, self-efficacy thoughts, goal orientation and intrinsic interest), performance/ volitional control (attention focussing, self-instruction/ imagery and self-monitoring) and self-reflection (self-evaluation, attributions, self-reactions and adaptivity) (Puustinen & Pulkkinen, 2001:277; Zimmerman, 1990; Zimmerman, 1998:4; Zimmerman, 2002). Zimmerman (1998:6) goes on to say that skilful learners adapt these self-regulatory phases in order to achieve learning.

To become a proficient writer, one must become self-regulated. Self-regulated writers are distinguished by their awareness of strategic relations between regulatory processes and the use and deliberate practice of these self-regulative strategies, to achieve these learning and writing goals (Zimmerman, 1990; Zimmerman & Kitsantas, 1999:242). According to the National Curriculum Statement for Home Languages, Learning Outcome 3, Assessment Standard 3 (DoE, 2003: 34), a learner should:

- reflect on, analyse and evaluate own work, considering the opinion of others, and present final product.

Reflection, analysis and evaluation are all self-regulated learning strategies (Zimmerman, 1990; Zimmerman, 2002) and as such should be taught as part of the learning and writing process. Learners who are taught to use self-regulatory strategies achieve greater academic performance (Archer, 1998; Paris & Paris, 2001:99; Zimmerman, 1990:8). A triadic model of self-regulation in writing, which gives equal status to behavioural, environmental and personal processes of writing is well suited for explaining fundamental questions about how the processes of writing are invoked and sequenced and how a writer's environment

and behaviours are orchestrated and managed (Zimmerman & Risemberg, 1997:79). Conversely, however, expertise in writing requires far more than high levels of self-regulation but rather relies on high levels of skill, motivation and self-regulation (Graham and Harris, 1997:106). Zimmerman and Kitsantas (1999:241) state that there are four levels of self-regulation required to become a good writer:

- observation or modelling of desired skills and behaviours
- emulation, which is the adoption of skills gained from feedback received and is the primary source of motivation for a writer
- self-control, when a writer is able to use a particular strategy as planned and is able to self-monitor the process of writing
- self-regulation is the final and highest level and at this level the writer is able to adapt his behaviour to the changing demands of the task, audience and intrapersonal states.

In order to be a good writer, one has to self-regulate writing behaviours. If modern technology has changed the way that we write, and in essence, changed the definition of language usage, what self-regulatory behaviours must a student employ in order to combat the tendency to revert to the informal 'SMS' language that seems endemic to our society?

1.3 The research questions

As this study was concerned with the relationship between SMS and writing achievement, certain research questions were posed in order to determine the nature of this relationship. Based on the review of literature the following research questions were posed:

- 1.3.1. What is the nature of SMS?
- 1.3.2. Does SMS language lead to changes in spelling and if so, what is the nature of the changes in spelling?
- 1.3.3. Is there a relationship between self-regulation in SMS and spelling age, and if so, what is the nature of this relationship?
- 1.3.4. What is the nature of the relationship between writing and spelling age?
- 1.3.5. What is the nature of the relationship between writing and self-regulation in SMS?
- 1.3.6. Is there a relationship between self-regulation and SMS and if such a relationship

exists, what is the nature of this relationship?

1.4 The purpose of the research

This study aimed to determine what the nature of the changes in SMS spelling were and whether or not these changes affected the participants spelling age and their ability to write formally within the context of a formal SMS and the English language class. This study also aimed to determine whether a relationship exists between self-regulatory skills and writing in SMS. The purpose of this study motivated the choice of a sequential explanatory research design which was devised in order to answer the research questions.

1.5 Research design

A sequential explanatory mixed-method design was employed in order to address the research questions posed by this study.

1.5.1 Literature review

Extensive literature searches were conducted on the EBSCOhost and Nexus databases, catalogues of South African and international university libraries, Sabinet as well as the World Wide Web. The following key words were used:

abbreviations, acronyms, digital generation, emoticons, goal setting, Internet language, MXit, Netspeak, punctuation, self-evaluation, self-reaction, self-recording, self-regulated learning, SMS language, spelling, Standard English, strategic planning, social cognitive theory.

1.5.2 Empirical research

A sequential explanatory mixed-method design was chosen for this study. Priority was given to the quantitative phase of this study, with the qualitative data used to augment the quantitative data. The rationale behind selecting a sequential mixed-method design lay in the purpose of the research. The purpose of this research was to determine the nature of SMS language (i.e. the changes in spelling) and to analyse the relationship between self-regulation in SMS and writing. Self-regulation in SMS is not assumed and as such, demanded a sequential mixed-method approach that lent itself to explaining an unexpected phenomenon (Plano Clark & Creswell, 2005: 229). The quantitative phase of this study was conducted first, with the qualitative phase, which included interviews, orthographic analysis of SMS text messages and document analyses following sequentially. The quantitative data

was then integrated with the qualitative data in order to sketch a picture of the phenomenon exposed in this study.

1.5.2.1 Quantitative research

The quantitative phase of this study comprised a survey design. Within this design, three instruments were developed in order to collect data from the participants. The data were analysed using SPSS (2009), STATSOFT (2009) and SAS (2005b) statistical programmes.

- **Participants**

The participants in this study comprised all the learners ($n = 250$) at a specific school in the North West Province. Using non-probability sampling, the learners at this specific school were selected for participation in this study due to the fact that: a) this school had English as a Home language as the medium of instruction, b) all the participants at this school had English as a Home language as a subject and c) all the participants owned cellular telephones.

- **Instruments**

Three instruments were used to collect data from the participants in this study in order to answer the research questions posed that had been identified. The first instrument was The General Survey of SMS, the second instrument was The Self-regulated learning in SMS questionnaire and the final instrument was the Schonell Graded Spelling Test.

The General Survey of SMS (Appendix 1) allowed the researcher to collect data related to various aspects involving SMS. Section A of the survey was aimed at gathering information regarding the possession of cellular telephones and the biographical variables (i.e. date of birth, gender and home language) relating to the description of this population.

Section B of the General Survey of SMS determined what exactly the participants in this study used their cellular telephones for (i.e. sending SMS text messages or making telephone calls) while the statements in Section C aimed to establish the nature of the SMS language used by the participants in this study. Section D-F provided information regarding the recipients of SMS text messages, the nature of the SMSes (i.e. humorous or serious) and the functional categories of the SMS text messages that are sent by the participants in this study.

The self-regulated learning for SMS questionnaire (Appendix 2) was designed in order to collect data related to self-regulation in SMS. Based on Zimmerman's (2000a) model of

self-regulation, this questionnaire investigated the use the context-specific area of SMS text messaging. The self-regulatory strategies of goal setting, strategic planning, self-recording, self-reflection and self-reaction formed the basis of this questionnaire.

The Schonell Graded Spelling Test (Appendix 4) is a diagnostic and assessment tool designed to determine the spelling age of the participants. The Schonell Test was selected for use in this study in order to determine the relationship between the participants spelling age and academic achievement in writing.

- **Validity and reliability**

In order to determine the validity of the General Survey of SMS and the self-regulated learning in SMS questionnaire, several statistical processes were completed. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy was calculated to determine the pattern of correlations between the items while Bartlett's Test of Sphericity determined if enough correlation existed between items. Construct validity was then determined by conducting a factor analysis, using Principal Axis factoring and Principal Component Analysis, in order to determine the communalities for the items in the survey and the questionnaire.

- **Statistical analysis**

The statistical analyses were performed in several stages. The first stage involved determining the validity and reliability of the measuring instruments.

The second stage of the statistical analysis involved the calculation of the Cronbach alpha coefficient (α) to determine the reliability of the various categories in the survey and questionnaire.

The third stage of the statistical analysis dealt with the descriptive analysis of the factor scores: means, and standard deviations.

The fourth stage of the statistical procedure involved the calculation of the practical significance (effect size) (d) of differences in means of different groups from the study population.

The fifth stage of the statistical analysis involved calculating a multiple regression analysis. Multiple regression analysis allows the researcher to determine the correlation between a criterion variable (creative writing mark) and the best combination of two or more predictor variables (self-regulation variables and spelling age) (Cramer & Howitt, 2004: 105; Fraenkel & Wallen, 2008: 331). A stepwise regression analysis involved finding the best relationship to

explain how the variation in the dependant variable (creative writing mark) depended on the variation in the independent variables (see Table 6.12).

1.5.2.2 Qualitative research

With-in a sequential explanatory mixed-method design, the qualitative data is used to explain and augment a phenomenon exposed by the quantitative data. The data in the qualitative phase of this study was collected using interviews, SMS text analysis and document analysis.

- **Participants**

Once all the data from the quantitative phase of this study had been analysed, the participants were given a rank in relation to their self-regulatory skills and spelling ages. Using interlaced sampling, two groups of participants, those with high self-regulation in SMS and high spelling ages (n=7) and those with low self-regulation in SMS and low spelling ages (n=7), were identified to be interviewed.

- **SMS text message analysis**

The General Survey of SMS yielded data regarding the nature of SMS language and as such, the qualitative phase of this study used transcriptions of SMS text messages to analyse and orthographically categorise the language used by the participants in this study.

- **Interviews**

The purpose of conducting interviews as part of the qualitative section of this sequential explanatory mixed-method study was to gather in-depth data regarding the participants experiences related to the nature of SMS language and the self-regulatory strategies that these participants employ in order to SMS effectively. A semi-structured interview schedule was developed in which three scenarios were sketched. The participants were then asked to explain how certain self-regulatory strategies (i.e. goal setting, strategic planning, self-recording, self-reflection and self-reaction) were used in different contexts when constructing an SMS text message.

- **Document analysis**

An analysis of the writing portfolios of the participants selected for the qualitative phase of this study was conducted in order to determine if SMS respellings had been transferred from the context of SMS to the formal academic context of portfolio writing. A checklist was used

to indicate the prevalence of SMS respellings in the portfolio pieces in evidence. The writing pieces were then analysed and incidences of respelling were indicated on the checklist.

- **Qualitative data analysis**

The interviews were then analysed using Atlas.ti (Muhr, 1997) in order to categorise the data and draw inferences from the participants' responses. The SMS text messages were also analysed using Atlas.ti.

1.6 Ethical aspects

Adherence to relevant ethical aspects of research, which are embodied in individual and professional codes of conduct, were accounted for during the development and conduct of the empirical investigation (§5.6). The rights and expectations of participants were respected, anonymity and confidentiality were granted, deception was avoided and the purpose of the research was made clear. The research was also conducted in such a manner so as to minimise any intrusion or disruption to the educational welfare of the participants.

1.7 Chapter division

The following chapters represent the structure of the research.

Chapter 1:	Statement of the problem and overview of the study
Chapter 2:	Short messaging service: the advent of a new language form
Chapter 3:	Self-regulated learning
Chapter 4:	Writing
Chapter 5:	Research methodology
Chapter 6:	Analysis and Interpretation of the data
Chapter 7:	Summary, findings and recommendations

SHORT MESSAGING SERVICE: THE ADVENT OF A NEW LANGUAGE FORM

2.1 Introduction

The inception of computer and cellular telephony has revolutionized written communication on a scale that has never been seen before. Not only is written communication now instant, new technologies have heralded the birth of a new linguistic form, computer-mediated communication or CMC (§2.4), which is produced when people interact with one another by transmitting messages via networked computers (Herring, 2000: 1). This chapter chronicles the linguistic features of CMC (§2.4) and the synchronous and asynchronous forums of the World Wide Web (§2.2.1 and §2.2.2), in which CMC is found. As computers are networked using Internet systems and the World Wide Web, a basic history of these is discussed. CMC is also seen as the precursor of the specialised use of truncated language employed by cellular telephone users when using Short Messaging Service (§2.7). As such, CMC is discussed as a starting point for SMS language, to illustrate how SMS language has developed during the past 17 years. Before one can begin a discussion of SMS and SMS language it is important to create a profile of the main adherents to this language, the youth (§2.5).

A brief history of SMS is also given (§2.6.1) in order to illustrate the phenomenal growth of this mode of communication. Other aspects that illustrate the characteristics of SMS include: how a text message is composed (§2.6.2), the functional categories of SMS (§2.6.3), the growth of SMS as a communication tool (§2.6.4) and the unique risks associated with SMS (§2.6.5). As this study is directed at describing the nature of SMS language, a detailed description of SMS language (§2.7) is given, with particular emphasis on the orthographic variations of this language (§2.7.1 and §2.7.1).

2.2 The dawn of the Internet and the World Wide Web

The Internet was developed in the 1970's in the USA as an experimental network which quickly grew to include military, federal, regional, university, business and personal users

(Crystal, 2002b: 3). The Internet (or the Net) is an association of computer networks with common standards which enable messages to be sent from any central computer (or host) on one network (or host). The Internet is an electronic, global and interactive medium of communication (Crystal, 2004a: 62; 2004b: 68).

Developed by Tim Berners-Lee in the 1990's, the World Wide Web is an Internet facility which was designed for multimedia usage (Crystal, 2004a: 62) in addition to facilitating communication between physicists at different institutions (Crystal, 2004a: 110). The World Wide Web is the full collection of all the computers linked through the use of a standard protocol (the Hyper Text Transfer Protocol, or HTTP) (Crystal, 2002a: 129; 2004a: 34). It is usually abbreviated to the Web or W3 and is presented in site addresses as www. (Crystal, 2002b: 13; 2004a: 110; 2004b: 66). Web sites are identified by a Uniform Resource Locator (URL) or a unique address (Crystal, 2004a: 111).

Forums or web sites of the World Wide Web can be divided into those where communication occurs in real-time or synchronously (Crystal, 2002b: 11; 2004a: 103; Shamsudin & Nesi, 2006: 319) or those that are postponed or asynchronous (Crystal, 2002b: 11; 2004a: 10).

2.2.1 Synchronous Internet usage

Synchronous Internet usage can be grouped as those which usually happen in 'real time,' in a 'chatroom' situation (Crystal, 2004a: 103). These include Internet relay chat (IRC) and Instant messaging (IM). The Internet and the World Wide Web also allow for the use of communication through imaginary or virtual environments. These virtual environments are known as MUD's and MOO's (Herring, 2000: 24). 'MUD' is an acronym for 'multi-user domain/dungeon' and was originally named for the computer game 'Dungeons and Dragons'. A 'MUD' now refers to a forum which allows multi-users opportunities to experience imaginary environments, develop new identities, explore fantasy worlds and engage in novel exploits (Crystal, 2002b: 12; 2004a: 75; Herring, 2000: 4). 'MOO' is an acronym for 'MUD Object Orientated' and are those text-based programmed objects (weapons, roads, furniture etc) which can be created or manipulated within the imaginary world (Crystal, 2002b: 174; 2004a: 74).

Internet relay chat (IRC) is a chatgroup system which allows users to be simultaneously in touch with one another, within the chat group channel (Crystal, 2002b: 151; 2004a: 63). IRC was developed by Jarkko Oikarinen at the University of Oulu in Finland in 1988 (Stenberg,

2008) in order to allow real-time discussions at the Department of Information Processing Science.

Instant messaging (IM) has been in existence since the late 1990's (Baron, 2002: 13). Instant messaging (IM) is a synchronous form of discussion where two or more people can hold synchronous (real-time) written conversations, viewed on their computer screens (Baron, 2002: 36; Crystal, 2004a: 60; Habib & Kurzon, 2008: 36; Kadirire, 2007: 5) where users pass text messages to one another in real time (Crystal, 2004a: 60; Doyle, 2003: 176). Close to 13 million teenagers were using IM by 2001 (Lenhart, Rainie, & Lewis, 2001: 3) with IM growing into the leading synchronous tool for undergraduate populations (Berman, 2006: 5).

'Chat' is a synchronous venue for holding conversations with multiple participants and is a development of Internet relay chat (Baron, 2002: 17; Crystal, 2004a: 26), while 'chatgroups' are continuous discussions on a particular topic, organised in 'rooms' at particular Internet sites, in which computer users interested in the topic can participate (Crystal, 2004b: 67). According to Chigona, Chigona, Bomkazi and Mpofu (2009: 2), there has been a marked rise in the use of MXit, using Mobile Instant Messaging (MIM), as the chat venue of choice amongst the youth, in South Africa. MIM is similar to IM as users are able to chat in chatrooms after they have added contacts to their lists (Chigona *et al.*, 2009: 3).

2.2.2 Asynchronous Internet usage

Asynchronous usage of the Internet is almost exclusively limited to the use of e-mail but can also refer to discussions in chat rooms, using bulletin boards, that do not take place in real time (Crystal, 2004a: 10). Electronic mail or e-mail is the use of computer systems to transfer messages between individual users, travelling between private mailboxes (Crystal, 2002a: 129; 2004a: 38; 2004b: 67). E-mails are asynchronous, with a response to any stimulus taking anything from seconds to months, depending on various factors. These factors include recipient's computers, and whether it announces the instant arrival of messages, the user's personality, habits and the circumstances of the interlocutors (Crystal, 2002b: 31; Herring, 2000: 24).

2.3 The advent of a new language form

Crystal (2006a: 13) and Gong (2003: 1) acknowledge that the Internet and the World Wide Web have done more to change our perception of language and how it is used than any other technology before it. So much so, that its arrival has amounted to the creation of a new

medium of communication, called Computer-mediated communication (CMC), a style of writing which blends the properties of traditional written and spoken language. The purpose of writing, the genres of written communication and the nature of the audience and the author are all changing rapidly with the diffusion of CMC (Berman, 2006: 1). Computer-mediated communication is acknowledged as the abbreviated form of writing employed by users of chatrooms and e-mail (Crystal, 2004a: 28).

Computer-mediated communication (CMC) was born from the needs of people who became dependent on IRC in the late 1990's, who found themselves developing a new phraseology in order to maintain an online conversation that kept pace with oral communication (Crystal, 2004a; Malala, 2006: 63). The linguistic motivations of IRC were economy and text entry reduction, respelling to simulate spoken language and multimodal visual and graphical shifts, in which the linguistic sign is pushed to the periphery of meaning making. This 'change' in the linguistic features of written communications has also been reflected in Instant messaging (IM) with the language of IM being described as 'new hieroglyphics' (Thurlow, 2003a).

A further Internet tool facilitated the growth of IRC. Wireless Application Protocol (WAP) is an Internet tool, or a WAP-enabled cellular telephone tool, which is used by people as Computer-mediated communication (Crystal, 2004a: 113; Ping & Beng, 2001). The language used in the WAP-based forum is unique, in that it is not formal nor does it resemble the messages found in the WEB-based forum. The characteristics include the use of short forms of words, omission of subjects, improper use of grammar, punctuation and tenses (Ping & Beng, 2001).

The use of these Internet tools lead to the formulation of a definition of this new form of writing in IRC and IM called Computer-mediated communication.

2.4 Computer-mediated communication

Computer-mediated communication (CMC) can be defined as the process of sending messages, primarily, but not limited to, text messages, through the direct use by users of computers and communication networks, including local area networks (LAN) or global networks (the Internet) (Crystal, 2004a: 28; 2008b: 164; Lawley, 1994; Wikipedia, 2008; Wright, 2003), but can also be applied to other forms of text-based interaction such as Short Messaging Service (see 3.5). CMC is known by various monikers: Netspeak (Crystal, 2002b: 64), Netlingo (Jansen, 2008), e-language (Abdulla, 2003) and computer-mediated English (Gong, 2003: 1). These are all interchangeable concepts, but for the purpose of this chapter, this digital language is referred to as Computer-mediated communication (CMC). Ooi (2002)

states that CMC is a form of human communication, made possible by the medium of the computer, and consists of a hybrid of speech, writing, graphics and orthography. CMC can be used in either synchronous (Shamsudin & Nesi, 2006: 319) or asynchronous digital environments.

A common feature found in CMC is the use of shortened words, the improper use of grammar, punctuation and spelling, with the omission of subjects from sentences (Ping & Beng, 2001). Crystal (2002b: 81) and Wright (2003) agree that the most marked features of CMC is the use of abbreviations, acronyms, distinctive graphology, use of capitalization, minimalist use of punctuation and distinctive use of spelling. Special linguistic features of CMC include a high degree of informal and vernacular language usage, the use of irregular and quasi-phonetic spelling, ellipsis and the use of obscenity. The function of abbreviated CMC is to conserve energy and/or space (Baron, 2002: 21; Berman, 2006: 9; Cadhain, 2005). The generic features of CMC (or *Netspeak*) are presented in Table 2.1 (Crystal, 2002b: 85).

Table 2.1 : Abbreviations in CMC (Netspeak) (Crystal, 2002b: 85)

ABBREVIATION	TYPICAL MEANING
Afaik	As far as I know
Afk	Away from keyboard
Asap	As soon as possible
a/s/l	Age/sex/location
Atw	At the weekend
Cm	Call me
Cu	See you
Cul	See you later
cul8r	See you later
Eod	End of discussion
Fotcl	Falling off the chair laughing
gr8	Great
Gsoh	Good sense of humour
Ic	I see
Imo	In my opinion
ABBREVIATION	TYPICAL MEANING
Iou	I owe you
Lol	Laugh out loud
Nc	No comment
o4u	Only 4 you

Tmot	Trust me on this
t2ul	Talk to you later
4yeo	For your eyes only

Crystal (2001:88) notes that teenagers have spawned a new form of spelling that is a feature of CMC, particularly in chat rooms, which include the following examples: phreak, fone, kool, l0zers (losers), d00dz (dudes) and c%l. 'K' is often used as an emphatic prefix e.g. k-kool or k-awesome.

Digital texts do not apply the same criteria as those which can be applied to normally written texts (Aw *et al.*, 2006: 2), while research conducted by White (2005) has indicated that the effect of the Internet on written language is predominantly negative, especially regarding spelling, grammar and syntax. Not all research has shown this negative trend though. Herring (2000: 5) notes that it is a popular perception that CMC is a less correct form of writing. Her research, found that although CMC often contains non-standard features, only a small percentage of these features are errors. Most of the non-standard features of CMC are deliberate choices made by users, in order to economise on typing and mimic the spoken word. Herring (2000: 6) states that this illustrates the users' ability to adapt the computer medium to their needs, rather than a decline in writing ability. The fact that digital texts do not apply the same criteria as those of 'normal' texts is of particular interest to this study, as the researcher aims to determine if SMS language has any negative influences on students writing ability.

There are two linguistic features that have shaped CMC, viz. asynchronicity and interactivity. Language in asynchronous CMC is linguistically more complex, although it is of a more informal nature. The language of asynchronous messaging is a curious mixture of informal and formal, of spoken monologue and dialogue and at the same time, it lacks some of the most fundamental properties of conversation, such as turn-taking (Gong, 2003: 4). This mixture of informal and formal aspects highlights an important characteristic of CMC, that of it being a hybrid between the spoken and written word.

The dichotomy that exists between speech and writing has often been seen as problematic, and Baron (1998) suggests that digital communications exist on a continuum, with asynchronous e-mail nearer to the traditional writing end of the continuum and synchronous CMC, nearer to the speech end of the continuum.

Baron (2002:4), Ling (2005:341) and Jukes (2007: 3) agree that Internet users have often commented that the written language of the Internet is more like speech than writing. Since CMC assumes the tangible form of written communication, recipients of these messages can only rely upon the text itself to decipher the sender's intent, and entails dialogue that has a greater sense of immediacy. Many users of CMC have complained that the written CMC medium is inadequate for expressing nuances of meaning that facial expressions and/or vocal features typically conveyed in face-to-face spoken conversations (Baron, 2002: 20).

Malala (2006) declares that people found themselves developing new phraseologies at the turn of the century in order to maintain an online conversation that kept pace with oral communications. There are however, certain properties that differentiate CMC from speaking. CMC is dynamic in nature, giving the writer the ability to add animation, refresh a page, frame messages or use hypertextuality (Crystal, 2005b: 1). But because of lag (time-delay), the rhythm of an interaction, even in the fastest synchronous chat rooms, lacks the pace and predictability of that found in face-to-face conversations (Crystal, 2002b: 31). An example is using initial points (trailing dots) for the kind of vague completion of utterance associated with the spoken word (Shortis, 2007b: 5).

Before a discussion of the unique features of CMC and SMS can commence, one must highlight the fact that written language used in digital communications, exhibits features of both written and spoken language, an aspect which is quite unique to the 'digital' world of communication (Tagg, 2009: 33). The key features of both speech and writing as proposed by Crystal (2002b: 26-28) are summarised in Table 2.2.

Table 2.2: Differences between speech and writing

	SPEECH	WRITING
1. Key features	1. Speech is time-bound, dynamic and transient. It is part of an interaction in which both participants are usually present, and the speaker has a particular addressee (or several addressees) in mind.	1. Writing is space-bound, static and permanent. It is the result of a situation in which the writer is usually distant from the reader, and often does not know who the reader is going to be (except in a very vague sense, as in poetry)
2. Time-lag	2. There is no time-lag between production and reception, unless one is deliberately introduced by the recipient (and thus, is available for further reaction on the part of the speaker). The spontaneity and speed of most speech exchanges make it difficult to engage in complex advance planning. The	2. There is always a time-lag between production and reception. Writers must anticipate its effects, as well as the problems posed by having their language read and interpreted by many recipients in diverse settings. Writing allows repeated reading and close analysis, and promotes

	pressure to think while talking promotes looser construction, repetition, rephrasing and comment clauses (e.g. you know, you see, mind you). Intonation and pause divide long utterances into manageable chunks, but sentence boundaries are often unclear.	the development of careful organisation and compact expression, with often intricate sentence structure. Units of discourse (sentence paragraphs) are usually easy to identify through punctuation and layout.
	SPEECH	WRITING
3. Participant Feedback	3. Because participants are typically in face-to-face interaction, they can rely on such extra-linguistic cues as facial expression and gesture to aid meaning (feedback). The lexicon of speech is often characteristically vague, using words which refer directly to the situation (deictic expressions, such as that one, in here, right now).	3. Lack of visual contact means that participants cannot rely on context to make their meaning clear; nor is there any immediate feedback. Most writing therefore avoids the use of deictic expressions, which are likely to be ambiguous.
4. Construction of words	4. Many words and constructions are characteristic of (especially informal) speech, such as contracted forms (isn't, he's). Lengthy co-ordinate sentences are normal, and are often of considerable complexity. There is nonsense vocabulary (e.g. thingamajig), obscenity, and slang, some of which does not appear in writing, or occurs only as graphic euphemism (e.g. f***).	4. Some words and constructions are characteristic of writing, such as multiple instances of subordination in the same sentence, elaborately balanced syntactic patterns, and the long (often multi-page) sentences found in some legal documents. Certain items of vocabulary are never spoken, such as the longer names of chemical compounds.
5. Function	5. Speech is very suited to social or 'phatic' functions, such as passing the time of day, or any situation where casual and unplanned discourse is desirable. It is also good at expressing social relationships, and personal opinions and attitudes, due to the vast range of nuances which can be expressed by the prosody and accompanying non-verbal features.	5. Writing is very suited to the recording of facts and the communication of ideas, and to tasks of memory and learning. Written records are easier to keep and scan, tables demonstrate relationships between things, notes and lists provide mnemonics, and text can be read at speeds which suit a person's ability to learn.
6. Capacity for misunderstanding	6. There is an opportunity to rethink an utterance while the other person is listening (starting again, adding a qualification). However, errors, once spoken, cannot be withdrawn; the speaker must live with the consequences. Interruptions and overlapping speech are normal and highly	6. Errors and other perceived inadequacies in our writing can be eliminated in later drafts without the reader ever knowing they were there. Interruptions, if they have occurred while writing, are also visible in the final product.

	audible.	
	SPEECH	WRITING
7. Unique features	7. Unique features of speech include most of the prosody. The many nuances of intonation, as well as contrasts of loudness, tempo, rhythm, pause, and other tones of voice cannot be written down with much efficiency.	7. Unique features of writing include pages, lines, capitalisation, spatial organisation, and several aspects of punctuation. Only a very few graphic conventions relate to prosody, such as question marks and italics (for emphasis). Several written genres (e.g. timetables, graphs, complex formulae) cannot be read aloud efficiently, but have to be assimilated visually.

However, Crystal (2002b; 2004b) highlights the fact that there are major differences between CMC and face-to-face conversations. These differences are: the lack of simultaneous feedback; there are no audio-visual cues (e.g. nodding of the head) which are so vital in face-to-face communication; the lack of pace and predictability that can be found in telephonic or face-to-face interactions and the linguistic strategies (conversational turn-taking) which underpin conversational exchanges are lost. It is interesting to note the CMC is also used in IM and that Instant messages do not contain the visual or aural cues that people get in face-to-face contacts and as such can often lead to misunderstandings (Lenhart *et al.*, 2001: 21).

CMC is unique in the fact that it can be seen as neither writing nor speaking, on many levels, yet exhibits the features of both writing and speaking at the same time. The greatest difficulty in understanding written texts using CMC is establishing the context of meaning in a context-dependent text which approximates the norms of informal conversation (Shortis, 2007b: 5).

It is vitally important to remember that there are certain variables that shape CMC. Using this form of language various linguistic variables can be identified. These variables are 1) the function of the message, 2) device constraints, 3) special linguistic features and 4) the profile of the participants (Baron, 2002: 19). Each of these variables ensures the uniqueness of messages constructed using CMC.

With the dawn of the Internet and World Wide Web, real-time communication has come to the fore. This has introduced a new language form labelled Computer-mediated communication. The unique aspects of this digital language have strongly influenced the writing style applied to Short messaging service (SMS).

The advent of cellular telephones in 1995 heralded the birth of a novel use of written language. A new technology always has a significant effect on the character and use of language (Berman, 2006: 1; Castells, Fernandez-Ardevol, Qiu, & Sey, 2004: 246; Crystal, 2006a: 5), but when a technology produces a medium that is so different from anything we have experienced hitherto, the linguistic consequences are likely to be dramatic (Gong, 2003: 1). The aim of this chapter is to highlight the orthographic, grammatical and linguistic variations of Short messaging service (SMS) language as experienced by English speakers. By profiling the youth who are most likely to use SMS language, and by plotting the history and development of SMS, a hybrid form of CMC (Computer-mediated communication), the uniqueness of this linguistic variation of digital communication will be explored.

2.5 Profiling a ‘Millennial’

The world of today is rapid-paced, where instant gratification, fast food and quick fixes are the order of the day. Technology, computers, Internet, e-mails and cellular telephones, together with the new language that these technologies have spawned, are part and parcel of the fast paced world of today’s youth. These ‘Millennials’, who were born between 1982 and 2000, are also known as ‘technology natives’ (Vail, 2005: 30) and as such, have been exposed to technology since birth. A plethora of monikers have surfaced in recent years in an attempt to label this new generation, or rather, to try and understand their world.

Mark Prensky (2001b:4) refers to this generation as Digital Natives, those who are able to process information quickly, who prefer random access to information, crave interactivity, thrive on instant gratification or rewards and who are able to multi-task (Lenhart *et al.*, 2001: 12; Mchale, 2005; Prensky, 2001a; 2001b: 2). Also referred to as the ‘DIG’ (digital instant gratification) or ‘MTV’ (Music Television) generation, they are a generation on the move to all things digital (Jukes, 2007; Vieux, 2003). Among teens and women, SMS is the preferred form of mediated communication, surpassing instant messaging and e-mail (Ling, 2005: 335) and as such, Thurlow (2003b) has christened them ‘Generation Text’, an obvious pun on Generation X.

This generation has become something of a cultural phenomenon in certain countries. In Japan, for example, teenagers have been given the signature title of *oyayubisoku*, ‘The Thumb Tribe’, alluding to the fact that teenagers are able to compose SMS messages, using only their thumbs, at great speed and often without even looking at the handset (Castells *et al.*, 2004: 182; Qiu, 2006). The idea of a cellular telephone no longer being seen as merely a tool, but rather as a ‘cool’ accessory is reflected in the Finnish word for cellular telephone,

käännnykkäs, which is derived from *käsi* meaning 'hand', thus stressing the idea that the cellular telephone is an extension of the self (Faulkner & Culwin, 2004).

The learners of today's classroom have a view of the world which is influenced by technology and the manner in which they communicate, both in written and oral form. As such, Prensky (2001a:2) contrasts the idea of Digital Natives with Digital Immigrants and says that Digital Immigrants have not been born into a digital world, but have become fascinated with and have adopted all aspects of the digital world. Digital Immigrants, who very often speak DSL (digital as a second language), are often confused and disorientated by the digital world (Jukes, 2007: 4). Prensky (2001a:3) further identifies the fact that a fundamental divide exists between 'Natives' and 'Immigrants' regarding the manner in which they communicate. Educators can be seen as Digital Immigrants, as they are from an older generation and therefore one can assume that communication in the classroom would be affected by the existing digital divide. Prensky (2001b: 5) notes that Digital Natives are often bored in the classroom of today, and fundamentally, this is due to the fact that Natives are used to the 'twitch speed' at which they usually function, while Immigrants usually operate at a much slower pace.

Castells *et al.* (2004: 60) report that the diffusion of the cellular telephone is higher among people of a younger age, and these young people are particularly active when using SMS. The obvious characteristic of this social group is the fact that they all have an unusually high intensity of SMS usage (Castells *et al.*, 2004: 126 & 164). Jansen (2008) makes an interesting observation when she states that the fact that creating a new style of writing on the Internet and in SMS has empowered teenagers and has become an important part of their culture. For young people, it seems that SMS can be characterised in terms of four gratifications, viz. high transportability, reasonable affordability, good adaptability and general suitability (Thurlow, 2003a).

In an attempt to understand and codify this form of communication, which is prevalent with the youth, a short history of SMS (§2.6) will commence, followed by a discussion regarding the linguistic features of SMS language (§2.7).

2.6 Short Messaging Service

Although users of the Internet employ a variety of styles of writing when using written communications on the Web, this chapter chiefly concerns itself with the language used when users communicate via cellular telephones, Short Messaging Service Language. The cellular telephone (as it is known in American and South African English) is also known as

the mobile telephone (in British English) (Castells *et al.*, 2004: 78; Crystal, 2008b: 5). The abbreviated terminology given for this form of telephony is cell phone or mobile. Thurlow (2003b) and Ling (2005:335) define SMS (Short Messaging Service) as asynchronous, text-based, unobtrusive, technologically mediated discourse.

Since the 1990's, the use of Short Message Service (SMS) or 'texting' has experienced growth on an unprecedented scale (Crystal, 2002b: 228; 2008b: 4; Ling, 2005: 335) and there are signs of text message spelling conventions and orthography manifesting itself in important exams and essays written by students (Chiluwa, 2008a: 56). A recent study conducted by Kristy Winzker (2009: 15) at the University of Stellenbosch found that the use of 'texting' language does not come to the fore in learners' academic work. There are those proponents who actively decry the use of this language, calling it 'penmanship for illiterates' (Sutherland, 2002), while Thurlow (2003b) finds it 'communicatively adept' having 'linguistic creativity' and 'a robust sense of play'. Abdulla (2003) is more reticent though, and says that this style of writing is acceptable while using electronic forms of communication, but should not be translated into formal essays.

SMSes have changed the way that people communicate because of the ease of use and accessibility of cellular telephones (Doyle, 2003: 175; Ling, 2005: 335). Leslie (2001: 370) explains that there are many advantages to using SMS systems on a cellular telephone, because messages are instant, reaching the recipient immediately and allowing for immediate response and text-data can be saved and re-read at any time, thereby avoiding confusion. SMSes are far more immediate, direct and personal than all other alternative methods of electronic communication and are far more convenient (Crystal, 2008b: 93).

SMSes are also changing the way we use language through its widespread use in wireless communication (Castells *et al.*, 2004: 246). The composition of the language of SMSes shows an expressive facet of mobile telephony, specifically the use of slang or newly manufactured words (Cadhain, 2005; Crystal, 2008b: 7). SMS language has the same characteristics as Computer-mediated communication (CMC) (§2.4), the language used in Internet written communications. Malala (2006) notes that Instant messaging (§2.2.1) and SMS use the same lexicon. But CMC has evolved to serve another purpose, that of communicating by SMS or text messaging. As such, CMC has been discussed as the foundation of SMS (§2.4).

It is asserted that SMS also retains both written and spoken language characteristics (Cadhain, 2005) and in their text messages (§2.5), young people write it like they say it, in order to establish a more informal register (Thurlow, 2003a). SMS language is more like the

'interactive written discourse' of conventional CMC and the fields of CMC and SMS are beginning to blur (Thurlow, 2003b).

The language of SMS is driven by three key sociolinguistic maxims: brevity and speed, paralinguistic restitution and phonological approximation (Thurlow, 2003a; 2003b). The dual maxim of brevity and speed is manifested mainly in the use of abbreviations and the minimal use of capitalization and grammatical punctuation. It is suggested that the reason for this brevity links rather with the fluidity of turn-taking and social interaction than with the constraints of the small cell phone screen. The next maxim, which stands in direct opposition to the first, is paralinguistic restitution, where it is sought to redress the loss of such socio-emotional or prosodic features such as stress and intonation by introducing capitalization, punctuation or emoticons (§2.7.3), an aspect of SMS language that has been borrowed from CMC. The final maxim is phonological approximation where words are written as they are spoken. It is apparent that young people approach SMS language with a meta-linguistic awareness and a robust sense of play (Thurlow, 2003b).

2.6.1 The growth of Short Message Service

SMS (Short Messaging Service), also referred to as texting or text-messaging (Crystal, 2004a: 97), is a Global System for Mobile Communication (GSM) service that enables a user to send short text messages to other cellular telephone users. The SMS service is actually a network of SMS centres that are connected to each other and interchange text-based messages (Doyle, 2000: 273). Cellular telephone messaging, which includes SMS (Short Message Service) and MMS (Multimedia Message Service), is an asynchronous cellular telephone service (Qiu, 2006: 1). SMS is a text-based service, while MMS allows for the transmission of audio and visual content on cellular telephones (Crystal, 2004a: 75; Qiu, 2006: 2).

According to Baron (2002: 14) and Qiu (2006: 2), the first SMS message was sent in the UK in December 1992 and read 'Merry Christmas', which by today's standards, seems strangely unabbreviated. SMS functions were launched in 1995 and were originally conceived as having a commercial use; a service provided for cellular telephones to signal the arrival of a voicemail message (Crystal, 2008a; 2008b: 4). By 2004, 95% of all 16-24 year olds in the UK admitted to sending an average of 100 text messages a month. Before 1998, most services were limited to the mobile operator networks only but now the key reason for the rapid growth in SMS numbers is that this service is now truly global (Doyle, 2000: 274). The volume of SMS messages sent globally exploded by 2000, and exceeded the 10 billion

messages a month mark (Doyle, 2000: 274). In the USA in 2002, 18 million cellular telephone owners were using SMS and in 2003, that number rose to 27 million (Castells *et al.*, 2004: 89; Paule, 2004). By 2002, in Great Britain, an average of one billion messages were being sent per month (Wouters & Wetzels, 2006: 209), while in that same year, the Philippines was referred to as a 'Texting Nation' with 100 million text messages sent each day (Paule, 2004). By mid-2004 close to 41.7 billion SMS's were sent worldwide each month (Qiu, 2006: 3). In 2005, the trillion mark was passed, and in 2010, the total number of SMS's sent worldwide will exceed 2.4 trillion (Crystal, 2008b: 4). It is evident that SMS is a modern phenomenon that has gripped the imagination of the world in a very short space of time, with the advent of its own language, its own etiquette and its own humour (Crystal, 2008a). It has been called the 'killer' application of cellular telephones, as its usage has exceeded all expectations (Markett, Arnedillo Sanchez, Weber, & Tangney, 2006: 282; Paule, 2004).

2.6.2 Composition of an SMS text message

It is difficult to write an SMS, whether the cellular telephone has a QWERTY keyboard or not (Crystal, 2008b: 66; Ling, 2005: 335). The SMS language used in text-messaging is restricted by the small screen of the cell phone, which only allows for the use of 160 characters per message (Chiluwa, 2008a: 51; Crystal, 2004a: 97; Faulkner & Culwin, 2004; Ling, 2005: 335; Paule, 2004; Rutland, Sheets, & Young, 2007: 841; Thurlow, 2003b; Wouters & Wetzels, 2006: 209). Although it has been found that the average length of a text message is 64 characters (Thurlow, 2003b).

All cellular telephones, including the most basic models, can send and receive SMSes, so this is by far the most widespread telephony technology (Balasundaram & Ramadoss, 2007: 119; Paule, 2004). Changes in cellular telephone design have not changed the manner in which people compose an SMS. The most basic models like the Motorola W181 and the Nokia 5000 have traditional cellular telephone pads that necessitate the use of the thumb in order to compose a message. Cellular telephones usually contain 12 – 15 keys with the 26-letter alphabet (Crystal, 2008b: 65). Messages are usually generated by tapping the numbers of the phone pad one or more times, corresponding to the letter of the Roman alphabet that is intended (Baron, 2002: 14). The multi-press technique is explained by Crystal (2008b: 66) and using his template, it is evident that writing a word or sequence (e.g. dog) involves many key presses. Using the multi-press technique, the word 'dog' would be sequenced in the following manner using five key-presses and two pauses:

- Press the '3' key once in order to create the letter 'd',
- Then wait for the time-out to be completed, which is indicated by the flashing cursor on the screen.
- Press the '6' key three times, ensuring that your presses follow one another quickly, in order to create the letter 'o' and then,
- Wait for the time-out to be completed, which is indicated by the flashing cursor on the screen.
- You can then press the '4' key once in order to create the letter 'g'.

At the time of writing this chapter, the more advanced models like the Nokia E75, the LG KS360 and the Blackberry Bold 9000 possess QWERTY pads which according to Crystal (2008a: 65) resemble traditional keyboards. Although one does not have to tap out the numbers of the more advanced cellular telephones in order to compose a message, one still has to use the thumb to type.

2.6.3 Functional categories of SMS

The majority of text messages that are sent by individuals to other individuals, at present, are of a personal nature, mostly between friends (Faulkner & Culwin, 2004). The personal nature of SMS's, the fact that a short text message can be delivered in near real-time, its unobtrusive nature, simplicity and the relative low cost, have been identified as some of the beneficial features of SMS (Doyle, 2000: 275). Given the informal nature of SMSes, it is understandable that the types of SMS's sent reflect the informality of this genre. Within the limitations of the cellular telephone, SMS's perform a wide range of social and informational functions (Crystal, 2008b: 105).

Thurlow (2003b) conducted a study to determine the primary functional orientations of SMS messages and concluded that functional categories present a largely descriptive overview of the types of SMSes that are usually sent. Other authors have found similar SMS message groupings in relation to Thurlow's categories, and where authors agree with Thurlow, this has been indicated in Table 2.3.

Table 2.3: Functional Categories of SMS's

FUNCTION OF SMS	DETAILS OF THE FUNCTION
Informational-practical	Exchange of practical details or straightforward requests for information
Informational-relational (Ling, 2005: 337)	Solitary information exchanges or requests for personal information
Practical arrangement (Ling, 2005: 335)	Recreational in nature, plans to meet or coordination of shopping and other household expeditions
Social arrangement (Ling, 2005: 335)	Recreational planning for social arrangements (going to movies or out to dinner)
Salutary (Ling, 2005: 335)	Non-specific and usually very brief and flippant, nothing more than simple, friendly greetings
Friendship maintenance (Faulkner <i>et al.</i> , 2004)	Messages concerning apologies, words of support and thanks, categorized as 'friendship work'
Romantic orientation (Castells <i>et al.</i> , 2004)	Expressions of love, intimacy and affection
Sexual orientation	Explicit sexual overtones
Chain messages (Castells <i>et al.</i> , 2004: 168)	Longer epigrams, jokes or word-plays which are passed from texter to texter

Thurlow (2003) concludes that the percentages of text messages can be analysed in the following manner: The low intimacy and high transactional orientation text messages such as informational practical, practical arrangement and chain messages, account for 31% of all text messages sent, while the high intimacy, high relational orientation messages, which include informational relational, social arrangement, salutary, friendship maintenance, romantic and sexual messages make up 61% of all text messages sent by SMS users. Content analysis of the participants messages revealed that at least two thirds of their messages were explicitly relational in orientation (Thurlow, 2003b). Castells (2004) found that most people employ text messaging to communicate with friends (73%), family (70%) and less frequently, with business contacts (26%). A study conducted by Chilwa (2008b: 15) shows that 59% of messages sent in Nigeria are of a religious nature.

2.6.4 Cellular telephone dissemination

Castells (2004: 60) has found that the dissemination of the cellular telephone is higher among people of a younger age. These young people are particularly active when using SMS (Wouters & Wetzels, 2006: 209). In a study of Norwegian SMSes, Ling (2005:342) found that the culture of SMS thrives more among younger women and that these women have a broader register when using SMS. Messages sent between women are longer, have a more complex structure, and retain more of the traditional features associated with conventional written texts.

As indicated in Table 2.4, it can be noted that 55.40 individuals in 100 own or subscribe to cellular services in Europe. Table 2.4 indicates the growth in the total number of cellular telephone subscribers between 1992 and 2003. Europe, North and South America, Oceania, Asia and Africa have all experienced phenomenal growth in the number of inhabitants who subscribe to cellular telephone services.

Table 2.4 Cellular Telephone Subscribers, per 100 Inhabitants (1992-2003)
(Castells *et al.*, 2004: 298)

CELLULAR MOBILE TELEPHONE SUBSCRIBERS PER 100 INHABITANTS (1992-2003)		
	1992	2003
Europe	0,80	55,40
Oceania	2,22	54,45
North America	4,27	53,07
Rest of America	0,13	21,88
Asia	0,12	15,03
Africa	0,01	6,16

South Africa had a total number of 36,36 cellular telephone subscribers per 100 inhabitants in 2003 (Castells *et al.*, 2004: 303) and, as such, was ranked as the 56th/100 cellular telephone subscribing country in the world. Africa has been identified as one of the fastest growth areas regarding cellular telephone subscription in 2007, with 21% of the population subscribing to cellular telephone networks (Crystal, 2008b: 5). This is an improvement of 15% from 2003 and it is evident that cellular telephone penetration in Africa, particularly in South Africa, is growing in leaps and bounds, and should continue to do so if the trends continue as before.

SMS has been identified as one of the largest growth areas in communication and SMS texting has been adopted by many. SMS language is the creative employment of cellular telephone usage in a context where the technology is available but where young people have a very limited budget to utilize this communication tool. SMS was dismissed by the telecommunication industry for private users because it is so hard to use: much time is needed to write a message that cannot contain much information and the cost of texting was seen as high (Castells *et al.*, 2004: 166; Paule, 2004). But today, SMS is the only mobile application that is profitable (Wouters & Wetzels, 2006: 209).

2.6.5 Unique risks inherent in SMS

As cellular telephone penetration increases, the world is faced with aspects of usage that have never been seen before, such as the compulsive use of SMS text messaging (Rutland *et al.*, 2007: 841). Rutland (2007:842) proposes that SMS addiction can be measured on Griffith's model of addiction, with six factors present to indicate the addiction. These factors are: salience (preoccupation with using SMS), mood modification (using SMS to escape problems or to feel better), tolerance (SMS needs to be used more frequently in order to feel better about oneself), withdrawal symptoms (feeling moody, restless or depressed when trying to cut down or stop SMS use), conflict (risking relationships or lying about SMS use) and relapse (repeated attempts to control or stop SMS use have failed). According to Rutland (2007: 842), SMS compulsion has been likened to gambling addiction.

The compulsive or addictive use of SMS text messaging has also lead to Text Message Injury (TMI), a form of repetitive stress injury, caused by the excessive use of the thumb, to type SMS messages (Crystal, 2008b: 170). In response to TMI, physiotherapists advise texters to use both hands when texting, to sit up straight in order to avoid undue stress on the neck and shoulders and to hold the cellular telephone as close to the body as possible. Physiotherapists also advise that texters should take regular breaks and reduce the time spent texting by using abbreviations or predictive text (Crystal, 2008b: 170).

Furthermore it seems that with the advent of new technologies, a new neurosis has been spawned among the texting population. In a study conducted by Reid and Reid (2004: 5), social anxiety and loneliness were measured. People who predominantly use SMS are significantly lonelier and socially anxious than people who prefer to speak over the cellular telephone. SMSing therefore seems to provide an opportunity for intimate personal contact whilst at the same time offering the detachment necessary to manage self-presentation and involvement (Reid & Reid, 2004: 6).

Cyberbullying has presented itself as a possible hazard related to SMS use (Belsey, 1999; Crystal, 2008b: 106; Webster, 2007). Cyberbullying refers to bullying through information and communication technologies, using mediums such as SMS messages, e-mails, Internet chat rooms, instant messaging, and the latest trend, social networks like MySpace, Twitter, Facebook and Bebo (Webster, 2007).

The most harmful example of the misuse of SMS and MMS in order to bully, was evident in 2005 when two teenage boys in London raped a classmate, while a third boy filmed the crime on his cellular telephone. Within minutes, the footage was forwarded to the entire school, via SMS. This is a disturbing trend, which has been dubbed 'happy slappers'. This trend sees teenagers launching vicious attacks on their peers. The sole aim of these attacks is to produce images and clips that can be circulated among teenage peer groups (Qiu, 2006: 10).

Recent surveys have shown that one third of teenagers have been threatened or had embarrassing things said about them via electronic communication or on the Internet. Unacceptable behaviour includes sending SMS messages that spread rumours or false information about someone and sending rude, harassing or threatening messages (Webster, 2007). Cyberbullies are often known as 'flamers', those who send aggressive or inflammatory messages (Crystal, 2004a: 45). Flaming has been described as an intrinsic quality of E-mail and SMS, resulting from the lack of auxiliary auditory and visual cues in CMC (Baron, 2002: 21). Moreover, flaming is also described as being similar to the ritual verbal duelling one finds in street gangs (Crystal, 2002b: 55) and is almost always aggressive and related to a specific topic (Crystal, 2004a: 44). 'Flamage' is the aggressive content of an inflammatory SMS, while 'flamebait' is an SMS sent with the intention of triggering an angry response. The act of flaming often results in a 'flame war', or dispute (Crystal, 2004a: 45). There is a positive twist on this phenomenon, as SMS's have proved valuable in giving children a discreet way of reporting when they are being bullied (Crystal, 2008b: 170).

2.7 SMS language

Thurlow (2003) and Ling (2005:335) define Short messaging service (SMS) as asynchronous, text-based, unobtrusive and technologically mediated. SMS stands for 'short message service', although it is generally interpreted as 'short text messaging' which occurs in an asynchronous (§2.2.2) environment (Baron, 2002: 14; Crystal, 2008b: 4; Martinez-Torres, Toral, Barrero, & Gallardo, 2007: 2; Paule, 2004; Qiu, 2006). A simple definition states that SMS language is the English language slang that is used by cell phone users

when generating messages (Wikipedia, 2008). SMS language is also referred to as chatspeak, txt, txtspeak, texting language or txt talk (Crystal, 2008b: 6) or textish (Faulkner *et al.*, 2004).

It has been noted that SMS language is often referred to in a derisive manner, referred to as 'textese', 'slanguage', 'a new hi-tech lingo', a 'hybrid shorthand' or a 'digital virus' (Crystal, 2008b: 13). In an attempt to move away from the predominantly negative connotations of the monikers used before, Crystal (2008a) has recently formulated a soubriquet for SMS language, and prefers to call SMS language 'Textspeak', an allusion to George Orwell's 'Newspeak'. Furthermore, SMS can also be classified as the digital language that has been adapted to the rapid-fire conversational style of Instant messaging (Faulkner *et al.*, 2004; Jansen, 2008). Thurlow (2003b) offers a deeper insight into the complex nature of SMS language by highlighting the fact that it is contingent, dynamic and hybrid, and is much like Instant messaging and speech, while Chilwa (2008b: 11) states that text messaging combines the advantage of dynamism, mobility and personality largely due to its unique linguistic style.

Although the language that constitutes an SMS may seem novel and interesting, it is in fact not. Many of the conventions that form the basis of this writing style predate computers and cellular telephones by 100 years (Crystal, 2008b: 37). SMS language though, has grown out of Internet relay chat, Instant messaging and Computer-mediated communication in particular, and has evolved into a unique form of digital language.

SMS language is a hybrid of Internet CMC, and IRC, but technically, SMS language cannot be classified as CMC, as SMSes were designed to be sent and received via cellular telephones and not through computer networks (Baron, 2002: 15). However, in recent years, it has become evident, that as communication platforms become increasingly interchangeable, the language that appears in e-mails, IM and SMS, has become more homogeneous, short, informal and full of space-saving devices, such as abbreviations and truncated syntax. Young people's SMS's are becoming increasingly dialogic, and resemble online synchronous 'chat' in its conversational structures (Thurlow, 2003a).

SMS language used in text-messaging is restricted by the small screen of the cell phone, which only allows for the use of 160 characters per message. Because of this restriction, an abbreviated style of writing has come to the fore (Crystal, 2008b: 6). Due to the size restrictions evident on a cellular telephone screen, the youth have created their own private, exclusive language (Castells *et al.*, 2004: 166; Paule, 2004). The reason for the develop-

ment of a whole new writing style in SMS, is that SMS's take such a long time to enter and people try to say as much as possible, using a few key strokes (Yahoo!, 2003).

Although SMS messages may bear some resemblance to single IM texts, SMS messages have a distinctive generic feel because of their comparatively short length, with the relative concentration of non-standard typographic markers, the 'small talk' content and solitary orientation (Thurlow, 2003b). Ilnatko (cited by Crystal, 2002b:89) humorously dubs this way of writing as 'leeguage' and states that the etymology of this jargon is named in honour of Pamela Anderson's bosom, which like the language, is totally unnatural, constructed with tortuous effort, and conforms to some vaguely perceived standard no one comprehends.

The greatest difference between Internet discourse and SMS texting is that Internet discourse is 'synchronous', happening in real time. This gives the sender and receiver very little time to compose an appropriate response, or to check meaning. SMS texting is 'asynchronous' as there is always a waiting period between messages, giving the sender the opportunity to change the content of the message, the receiver time to compose an appropriate response and/or to ponder the meaning of the message (Faulkner & Culwin, 2004; Jansen, 2008). The asynchronous nature of SMS's prove to be more reliable when one ponders the content and meaning of a message before it is sent (Faulkner & Culwin, 2004).

Yet Crystal (2008a) does warn of the possible pitfalls of using SMS language. No two texters use identical conventions, and while accepted abbreviations are often used (txt or msg), often they are not. Writing messages phonetically opens another can of worms, because phonetic representations of the way that words are pronounced are influenced by regional accents. These could be seen as some of the stumbling blocks to codifying SMS language. There are however, certain characteristics of SMS language which render it unique in the annals of digital communications.

2.7.1 Variations in abbreviated SMS language

Although features of CMC are often found in SMS language, the obvious challenges of the cell phone's small screen has lead to the development of an even more abbreviated and truncated language that often has a rebus-like quality (Cadhain, 2005; Carrington, 2005; Crystal, 2002b: 229; 2008a; 2008b: 37). Thurlow (2003) states that the 'new' form of language that has emerged through the use of SMSes can be organized into the following broad categories: (1) abbreviations, (2) acronyms and initialisations, (3) alphanumeric

homophones, (4) orthographic considerations and unorthodox spelling, (5) accent stylizations, (6) capitalization, (7) punctuation and (8) emoticons. A discussion of the following categories will follow.

2.7.1.1 Abbreviations

According to Thurlow (2003b), Crystal (2008b: 45) and Tagg (2009: 148) the most common abbreviations that are found in SMS language are shortenings, contractions and clippings (see Table 2.5).

Table 2.5 Abbreviations found in SMS messages

ABBREVIATIONS FOUND IN SMS MESSAGES	EXAMPLES
Shortenings	<congrats> for <congratulations>
Contractions	<plsed> for <pleased>
Clippings	<enlis> for <english>
• G Clippings	<messin> for <messaging>; <comin> for <coming>; <getn> for <getting>
Abbreviations	
• Omission of vowels	<gd> for <good>; <xlnl> for <exellent>
• Consonant reduction	<imedtly> for <immediately>

The abbreviations that are most commonly found in SMS messages include: the shortening of words, which occurs when the end letters are purposefully omitted; the contraction of a word, by dropping letters from the middle of a word and clippings/G-clippings, which occur when the final letter of the word is omitted. Other abbreviations that are common include the exclusion of vowels and consonant reduction (Crystal, 2008a: 45; Tagg, 2009: 150; Thurlow, 2003b).

An investigation of 159 older teenagers shows that 82% of participants reported using abbreviations in their text messages (Thurlow, 2003), while a study of Norwegian SMSes by Ling (2005) shows that only 6% of all messages contained abbreviations (Ling, 2005: 340) with the most abbreviated language found in teens' messages. Abbreviations only accounted for 20% of the overall message content in Thurlow's (2003) investigation. This seems to be

at odds with the popular belief that SMS language is a highly abbreviated 'code' employed by young people.

2.7.1.2 Acronyms and initialisms

Acronyms and initialisms are the second most noted feature of SMS language according to Crystal (2008a; 2008b: 41). Crystal (2008a) further maintains that there is an ergonomic value in abbreviation, allowing the texter to make better use of the design of the cellular telephone screen. The use of acronyms and initialisms have motivated a whole new genre of abbreviated forms with these abbreviations not being restricted to words or short phrases, but can indeed, be sentence length (Cadhain, 2005; Crystal, 2002b: 86). To put it succinctly, everyday words are reduced to their initial letters (Crystal, 2008b: 42). Online Dictionaries, such as the Dictionary of SMS Shortcuts (Anon, 2008a) have sprouted all over the web, in an attempt to codify and clarify commonly used abbreviations and acronyms.

According to Crystal (2008b: 42), the ergonomic features of economy and text entry reduction (using abbreviations and acronyms in SMS messages), are largely made up of initialisms as seen in Table 2.6. These initialisms take the form of initials for individual words, compound words, phrases, whole sentences or expostulations. Chiluya (2008b: 13) and Shortis (2007b: 8) agree with Crystal (2008b: 42) by stating that initialisms and acronyms are substituted for key bindings and phrases (<G2G> for <got to go>).

Table 2.6: Initialisms used in SMS messages (Crystal, 2008b: 42)

INITIALISMS	EXAMPLE
Initials used for individual words	<N> for <no>; <G> for <grin>; <Q> for <queue>
Initials used for compound words	<GF> for <girlfriend>; <DL> for <download>; <W/E> for weekend
Initials for words in phrases	<CWOT> for <complete waste of time>; <FTF> for <face to face>; <NP> for <no problem>; <AML> for <all my love>
Initials for words in elliptical or whole sentences	<JK> for <just kidding>; <DK> for <don't know>; <CMB> for <call me back>; <SWDYT> for <so what do you think?>; <MMYT> for <mail me your thoughts>
Initials for words in expostulations	<OMG> for <Oh my God!>; <YYSSW> for <Yeah, yeah, sure, sure, whatever!>

2.7.1.3 Rebuses and alpha-numeric homophones

Rebuses are often seen as the most unique and noticeable aspect of SMS language (Crystal, 2008b: 37). A rebus is a message which consists entirely of pictures that are used to represent the sounds of words, rather than the objects that they refer to (Crystal, 2008b: 39). Rebuses have a long linguistic history. The Victorians played rebus-games and children's Christmas annuals have long contained rebus-puzzles (Crystal, 2008a). A rebus mixes letters and pictures to make words and sentences (Crystal, 2005a: 65). When graphic units are used in this manner, they are technically known as logograms or logographs, and when used in SMSes, they may be used singularly or in groups (Crystal, 2008b: 38). SMS's use alphanumeric conventions, which are rebus-like, with the sound value of the letter or number acting as a syllable in the word (Chiluwa, 2008a: 54; Crystal, 2004b: 86; Shortis, 2007a; Tagg, 2009: 118). Examples of these alphanumeric homophones are presented in Table 2.7.

Table 2.7: Alphanumeric homophones (Crystal, 2004a)

ALPHANUMERIC HOMOPHONES OR RUBUSES	MEANING
b4	Before
@oms	Atoms
2day	Today
Xxxx	Kisses
Zzzzz	Sleeping

2.7.2 Orthographic variations of SMS language

The linguistic motivations of economy, text entry reduction and respelling in order to simulate the spoken word found in Internet relay chat and Computer-mediated communication, are also to be found in SMS respellings (Shortis, 2007b: 7). According to Shortis (2007b: 17), the dawn of 'unregimented' writing, uses informal platforms increasingly, with a looser, more permeable sense of what counts as spelling. Spelling has become a deployment of choices from a range of options, including the Standard English form, with the matter of appropriateness and identity rather than that of correctness and uniformity, coming to the fore.

Crystal (2008b: 48) states that texters are prone to misspell, both unconsciously and deliberately. The non-standard orthography of SMS spelling has often been cause for concern. Shortis (2007a: 21) notes that the growth of informal writing has deregulated what counts as standard English spelling and has opened up tolerance of a wider range of spelling

choices. Spelling is now more flexible and is used with functional economy, allowing digital writers to inflect nuances of meaning in their text messages and the importance of spelling in text forums has also been played down by Shortis (2007a: 21).

There is nothing new about vernacular spelling features in language (Shortis, 2007b: 18), but it must be noted that according to Crystal (2002b:88) and Cadhain (2005) the most distinctive aspect of CMC and SMS is the deviant use of spelling. New spelling conventions have emerged, such as the replacement of the plurals with z, e.g. <gamez>; <tunez> and <downloadz>, the use of non-spellings to reflect pronunciation, e.g. <kay>; <nooooooooo>; <nope> and <yep> and spellings can reflect emotions of horror and shock, e.g. <aaaiiieee> and <yayyyyyyyyy>. Most SMS messages are constructed in an informal telegraphic style with features such as phonetic spelling and a unique spelling convention occasioned by the influence of the mass media, computing and Americanisms (Chiluwa, 2008b: 13).

According to Shortis (2007a: 25; 2007b: 7), there is a finite set of orthographic principles which account for the overwhelming majority of what he has dubbed 'Txt respellings' (sic). These motivational principles draw from a model proposed by Werry in 1996. The three main motivations are: economy and text entry reduction; emulation of the spoken word and a shift toward visual and graphical effects. According to Shortis (2007b: 8) and Chiluwa (2008b: 13), the features of economy and text entry reduction comprise such devices as respellings by analogy with other words with more straightforward sound-spelling correspondences (<thru> for <through>, <fone> for <phone>).

Shortis (2007b: 18) acknowledges that the Internet and digital communications have revolutionised what counts as spelling, because it has legitimised and popularised the vernacular orthographic practices drawn from texts spelt in Standard English (§4.2) even though the spelling used in these contexts is predictable, norm-related, ubiquitous and culturally allusive. It has also been noted that although SMS spellings adhere to a vastly different set of criterion than that of standard spelling, SMS spelling does not have a detrimental effect on spelling and literacy (Vosloo, 2009: 6) The aspects of SMS language which together, illustrate the non-standard forms of SMS language are presented in Table 2.8 (Aw *et al.*, 2006; Crystal, 2008b: 48; Thurlow, 2003b).

Table 2.8: Non-standard orthographic forms of SMS language

	SMS LANGUAGE	FULL WORD
Shortenings	Uni	University
	Mon	Monday
	Bro	Brother
Dropping of vowels	Hv	Have
Contractions	Gd	good night
	Sn	Soon
	Spk	Speak
	Nxt	Next
G clippings	Goin	Going
	Comin	Coming
Other clippings	Hav	Have
	Wil	Will
Initialisms	TTFN	Ta ta for now
	ASAP	As soon as possible
	LOL	laugh out loud
Letter/number homophones	B	Be
	U	You
	l8	Late
	evry1	Everyone
Misspellings and typos	Excelent	Excellent
	Seing	Seeing
Non-conventional spellings or phonetic spellings	Otha	Other
	Erd	Heard
	Lata	Later
Accent stylisation	Wivout	Without
	D'ya	Do you
	Wassup	what's up?
	Yo	Greeting
Emoticons	:(	Sad
	:)	Smiling
Punctuation	No way!!!!!!	Emphasis

2.7.2.1 Simulation of the spoken word

A completely unique orthographic feature of SMS language is that of the simulation of the spoken word in written SMSes. The features for giving respelling a simulation of spoken language include eye dialects, accent simulations, stage directions in parenthesis and reduplication for emphasis (Chiluwa, 2008a: 55; Crystal, 2008b: 49; Shortis, 2007b: 8; Tagg, 2009: 111). Examples of these simulations are presented in Table 2.9.

Table 2.9: Simulation of the spoken word in SMS messages

SIMULATION OF THE SPOKEN WORD	EXAMPLES
Eye dialect	<tuff> for <tough>; <bin> for <been>
Accent simulation	<tuff> for <tough>; <bin> for <been>
Stage directions	Monsieur (said in a French accent)
Reduplication for emphasis	<Sooooooooo>

In Nigeria text messaging is mostly used in the urban areas, which implies that SMS texts in Nigeria reflect urban Nigerian English (Chiluwa, 2008a: 55) with much of the spelling corresponding with Nigerian pronunciations. An example of this is provided by Chiluwa (2008a: 55), in Table 2.10, where he compares SMS accent stylizations with accepted Standard English. It is evident that the written Nigerian stylizations are an approximation of the spoken accent. This is an example of how the spoken word influences the written word in SMS.

Table 2.10: Abbreviations in Nigerian SMS that reflect accent stylizations

	ABBREVIATION	MEANING
Articles	d, de	The
	sm, som	Some
Demonstratives	dat	That
	dose, dos	Those
	dis, ds	This
	diz, dz	These
Personal pronouns, possessives and reflexives	u	You
	hm	Him

	ABBREVIATION	MEANING
	ur	Your
	hr	Her
	dey, dy	They
	dem, dm	Them
	ur's, urs	Yours
	urself	Yourself
	oda, odr	Other
Auxiliary verbs/ Modals	re, r	Are
	hv, ve	Have
	wll, ll	Will
	wd, 'd	Would
	shll	Shall
	kud, cud, kld	Could
	bin, bn	Been
Prepositions	2	To
	4	For
	@	At
	abt	About
	abv	Above
	be4, b4	Before
	behd, bhd	Behind
	arnd	Around
	btw, btwn	Between
Adverbs	2morrow, 2mrw, tmrw	Tomorrow
	2day, 2dy	Today
	4ever, 4evr	Forever
	2night, 2nite	Tonight
	nxt	Next
Link words	&, n	And
	bt	But
	wh	Who
	dt, dat	That

	ABBREVIATION	MEANING
Nouns/ verbs/ adjectives	tanx, tks	Thanks
	mth	Month
	capsls	Capsules
	muv	Move
	wnt	Want
	pls, plz	Please
	tot, thot	Thought
	nus	News
	cntnue	Continue
	sbmtg	Submitting
	cl, kl, culd, kld, cld	Call/ called
	loavs	Loaves
	natnl	National
	sorri	Sorry
	sa	Sir
	korig	Courage
	grit	Greet
	hop, ope, hp	Hope
	jst	Just
	piecfl	Peaceful
	exhstd	Exhausted
	gud	Good
	numba, nmba	Number
	wkend, wknd	Weekend
	pd	Paid
	oda	Order
Clauses	I've, I've	I have
	Ivn't	I have not
	I'm	I am
	U're, u'r	You are
	U'll, u'l	You will

	ABBREVIATION	MEANING
Greetings	gmornin	Good morning
	gevnin	Good evening
	helo	Hello
	gnite, gnight	Good night

2.7.2.2 Capitalization

Capitalization is a strongly marked feature of CMC and SMS (Cadhain, 2005; Crystal, 2004b: 87). The use of capital letters can be seen as a graphical indicator of an auditory paralinguistic feature, such as pitch or volume (Shortis, 2007b). A texter may use <AUFAUFAUF> to indicate a dog, barking loudly. Capitalization is also used to add emphasis in a message (Crystal, 2004a: 24). A texter may write the following sentence, 'this is very important' but change the 'very' to 'VERY' in order to stress the importance of the matter.

Ling (2005:340) conducted an analysis of SMS messages that shows teens were more likely to use capitalization and punctuation. Capitalization can be distinguished on three different levels: 1) no capitalization; 2) capitalization of only the first letter in the message and 3) complex capitalization including the use of capital letters in names, proper nouns and at the beginning of secondary sentences. 82% of these messages had no capitalization, 11% had only first letter capitalization and the remaining 7% had complex capitalization (Ling, 2005: 340).

2.7.2.3 Punctuation

According to Crystal (2002b:89) and Cadhain (2005), punctuation is often used minimalistically and/or not at all in SMS messages. Texters are well aware of the fact that punctuation marks have low information value (Crystal, 2008a). The lack of punctuation may cause difficulties when communicating, as punctuation serves the purpose of bringing a balance between the written and spoken word. Research conducted by Ling (2005:340) found that an analysis of punctuation in SMS messages highlighted the fact that texters either use punctuation, or they do not. While Thurlow (2003b) found that 192 apostrophes

were used in 544 SMS text messages that were analysed. This analysis seems to indicate that the use of some punctuation is still evident.

Unusual combinations of punctuation can also be found in CMC and SMS, according to Crystal (2002b: 89; 2008b: 91). These include: repetition, emphasis and odd combinations of punctuation marks. The repeated use of commas or hyphens instead of ellipsis dots are used in order to indicate a pause, while emphasis or attitude is expressed through the random use of punctuation (Tagg, 2009: 246). There are also odd combinations of punctuation marks at the end of sentences. These unusual variations in punctuation use are illustrated in Table 2.11.

Table 2.11: Variations in punctuation in SMS messages

VARIATIONS IN PUNCTUATION	EXAMPLES
Repetition	The repeated use of commas (,,,,,,,,) or hyphens (-----) instead of ellipsis dots (.....) to express a pause.
Emphasis	Emphasis and attitude is expressed through random use of punctuation e.g. !!!!!!!!!!! or \$%@\$!
Odd combinations	Yahoo! (where the exclamation mark is part of the brand name).

In SMS language, texters seem to be aware of the fact that punctuation marks have a low information value (Crystal, 2004a: 91; 2008a) and often there is no use of punctuation at all. Most difficulties in relating meaning to the text come from understanding the context rather than the orthographic obscurity (Shortis, 2007b: 6).

2.7.3 Emoticons

Scott Fahlman, a Carnegie Mellon University alumnus, designed an ASCII (American Standard Code for Information Interchange) glyph in 1982 thus heralding the birth of the emoticon or as it is known colloquially, the 'smiley'. The ASCII glyph is a code developed for representing characters as numbers (Baron, 2002: 20; Crystal, 2004a: 9; Fahlman, 2001). The word 'emoticon' is a portmanteau of 'emotion' and 'icon' and is a symbol or combination of symbols used to convey emotional content in written message form (Blackwidow, 2008; Wikipedia, 2008) or rather inflect semantic nuances rather than grammatical inflexion (Shortis, 2007a: 22).

Emoticons are the final linguistic feature of CMC that has emerged from the conversational nature of CMC in SMS (Baron, 2002: 21; Wright, 2003). As such, emoticons are used to express emotion (usually more positive than negative), for strengthening the verbal part of a message and for expressing humour (Derks, Bos, & Von Grumbkow, 2008: 101). Furthermore, emoticons are used more when communicating with friends than with strangers.

SMS represents an arena where the teenager can set aside rules of grammar and punctuation, and create a two-dimensional world of descriptive phrases, styles and expressions, particularly using the emoticon to achieve this 'revolt' against the accepted usage of grammar (Jansen, 2008). Emoticons are a sequential combination of keyboard characters designed to convey emotion associated with a particular facial expression, and are usually inserted at the end of a message and produce the image of a face as seen sideways (Baron, 2002: 20; Crystal, 2004a: 39; Shortis, 2007a: 23). The use of emoticons or smileys in SMS communications serves to reduce the abruptness of the medium (Yahoo!, 2003). According to Baron (2002:20) emoticons represent semantic nuances such as happiness, sadness and qualification.

Building on the CMC tradition of emoticon usage, SMSes exhibit features which incorporate graphical and kinaesthetic devices such as emoticons, sometimes from emoticon banks, use of colour, movement, pictorial imagery, alphabetical rebuses such as (<@}-'-, '---->) for a rose, other special effects such as the use of text written in dingbats/webdings or other non-alphanumeric fonts (Crystal, 2008b: 38; Shortis, 2007b: 8).

Research conducted by Thurlow (2003b) found that there were only 39 instances of emoticons used in the entire corpus of 544 SMS texts in his study. Shortis (2007a: 22) also found that many texters avoid using emoticons altogether. Surveys of emails and chatrooms show that only 10% of messages use emoticons (Crystal, 2004a: 119) but a comprehensive study of SMS messages has yet to be undertaken. Although research seems to suggest that emoticons do not occur in messages, as frequently as is usually believed, the fact remains that they do occur. As such, smileys or emoticons can be accessed on the Web, in emoticon banks like the on-line Encyclopaedia Dramatica (Anon, 2008b) and Imp's Internet Guide (Blackwidow, 2008), and a comprehensive list of emoticons (see Table 2.12) used in SMS language has been compiled by the researcher (Crystal, 2004a: 120; 2008b; Shortis, 2007a: 23).

Table 2.12: Emoticons and Smileys

	EMOTICON	MEANING
Colon set	:~))	Very happy
	:~*	Kiss
	:~-----)	Pinocchio
	:~(0)	Yelling
Semi-colon set	;-)	Winking
	;-P	Tongue in cheek
	;-o)	Happy
	;->	Devilish wink
	;~>)	Smirking
Period set	.-(-	Lost a contact lens
Question-mark set	?~o)	Wavy hair parted on one side
Exclamation set	!~;-)	Being imaginative
Apostrophe set	'~;-)	Winking
Hyphen set	-~;-)	Punk
Opening round bracket set	(~;-(-	Very unhappy
Closing round bracket set	)~;-)	Impish
Opening square bracket set	[~;-)	Wearing a walkman
Closing square bracket set	]B~;-)	Batman
Opening curly bracket set	{~;-{	Very unhappy
Closing square bracket set	}~;-}	Big grin
Opening angle bracket set	<~;-o0	Dunce
Closing angle bracket set	>~;-(-	Angry
Tilde set	~(_8^(!)	Homer Simpson
Asterisk set	*~;-o	Alarmed
Backslash set	/~;-o	Bored
Forward slash set	/~;-l	Mr Spock
Pipe set	~;-)	Sniggering
Underbar set	_~;,^..^,;,_,	Harry Potter

	EMOTICON	MEANING
Caret set	^5	High five
Percentage set	%')	Drunk
Ampersand set	&:-)	Curly hair
At set	@;-)	Flirt
Hash set	#:-)	Wearing a fur hat
Equals set	=:-o	A hair-raising experience
Plus set	+0:-)	The Pope
Zero set	0:-)	Angel
Numerals set	8-)	Wide-eyed smile
Letters set	X-)	Unconscious

2.8 Novelties in SMS language

SMS language developed out of the need for rapid-fire communication, necessitated by demands of communicating via a cellular telephone. Crystal (2008b: 53) however, draws attention to the fact that there are a few truly unique aspects concerning SMS language. These unique features are what separate SMS language from CMC and other forms of digital languages, and classify it as a genre on its own.

The first unique feature of SMS language is the use of extended initialisms (<IMHO> for <in my humble opinion>; <IMCO> for <in my considered opinion>; <IMHBCO> for <in my humble but correct opinion>; <IMNSHO> for <in my not so humble opinion>). The second distinctive feature of SMS language is the use of sequences using shortened and full words (<hldmecls> for <hold me close>). Logograms and shortened words are the third feature of SMS language which is unique to the genre (<2bctnd> for <to be continued>). Together with Logograms, the non-standard spellings (<cu2nite> for <see you tonight>) that have emerged from this genre also make SMS language exclusive.

All four features can be used together. An example of this is:

<iowan2bwu> for < I only want to be with you> = full word + initialism + a shortened word + two logograms + initialism + a logogram or:

<ijc2sailuvu> for < I just called to say I love you> = full word + two initialisms + logogram + shortened word + full word + non-standard spelling + logogram.

The one aspect that is shared by the examples presented above, is the fact that the letters, symbols and words, all run together, without spaces, an aspect that is unusual in the history of special writing systems (Crystal, 2008b: 54).

The 'slang' nature of SMS language and its use of accent stylisations, is the fourth feature that separates it from other forms of digital language (Crystal, 2008b: 56). The idea of a specialised form of language uniting a specific group of people has been around for a long time, and this is no different for SMS language. SMS is a form of language that has been used predominantly by the youth, and as such, exhibits the features of the language used by the youth when they communicate verbally. An example of this is <F?> for <are we friends now?> or <a3> for <anytime, anywhere, anyplace>. These abbreviations will only hold relevance for the particular group that understands them or uses them (Crystal, 2008b: 56) and for no other.

2.9 Personal style in SMS language

Personal style and idiosyncrasies are the aspects of SMS language which may prove to be the most unique feature of all. To abbreviate or not? is the question asked by each texter. Personal, ethnic or regional accent may influence the written text, and personal preference may account for the length of an SMS message (Thurlow, 2003b). Messages are often identified by the personal style of incoming messages, each message having a 'virtual signature' of sorts (Thurlow, 2003b). No texter is entirely consistent and no two texters use identical conventions (Crystal, 2008a; Crystal, 2008b: 60). If one takes this at face value, it is evident that personal style may lead to difficulties when trying to codify SMS language while text dialectology is set to be the future of SMS language research (Crystal, 2008b: 62).

2.10 Conclusion

Crystal (2002b: 21) highlights the fact that language usage, especially the use of informal language, changes whenever a new form of technology is introduced to the world. Cellular telephony has introduced the world to SMS language, a hybrid language, which is asynchronous in nature. It makes use of truncated vocabulary, abbreviations and unique spelling conventions. It is heavily reliant on personal style and accent stylisations and as such, is a unique form of Computer-mediated communication.

Crystal (2008) states that it is unlikely that SMS language will have an effect on language as a whole, because the whole point of the style is to suit a particular technology where space is

at a premium. What we are witnessing is language in evolution, which is a manifestation of the human ability to adapt language to suit the demands of diverse settings. It is important to remember that, although SMS language has emerged as a force to be reckoned with, a surprisingly small number of new words have been spawned (Crystal, 2008a).

There is a longstanding historical basis for the non-standard orthography as found in SMS language and writers such as e.e. cummings, James Joyce and William Faulkner as examples of creative geniuses who were able to use literary art to recreate the vividness of the spoken word (Shortis, 2007a: 21). The only problem with a statement of this nature is that today's youth do not have the know-how or expertise to practise the art of manipulating the lexical foundations of spelling itself. One must gainsay this argument and contextualize the issue. The non-standard orthography of SMS language is creative and vivid; it is a reflection of stylized accents and a simulation of the spoken word. It is also part and parcel of the world view of the Millennial generation. The task that faces educators is to incorporate this new 'textualisation' and ensure that it does not supersede or invalidate the tradition and long-respected role of writing using standardized and accepted codification of words.

The final word lies with Abdulla (2003) though, who very succinctly states that what he calls e-language is here to stay, and that this fact should encourage educators to continue to seek more effective ways of using the e-tools in writing instruction.

SELF-REGULATED LEARNING**3.1 Introduction**

The fast pace of modern life and new developments in technology (i.e. email and cellular telephones) have brought about more rapid methods of writing (Heinemann, 2004: 20). The emergence of this 'new' (§2.7) or non-standard rapid style of writing has caused a gulf to develop between what is known as the 'digital native' and the 'digital immigrant' (§2.5). What has come to the fore is the fact that learners are using SMS language (§2.7) creatively, expanding the boundaries of what is considered academic writing (§5.2).

In order to be an academic or proficient writer, one must become self-regulated (Hammann, 2005: 17). Self-regulated writers are distinguished by their awareness of strategic relations between regulatory processes and the use and deliberate practice of self-regulative processes, to achieve learning and writing goals (Zimmerman, 1990; Zimmerman & Kitsantas, 1999:242). The NCS (National Curriculum Statement) for Home Languages emphasises self-regulation as a requirement in that self-regulatory strategies should be taught in schools. These include:

- the ability to demonstrate planning skills for writing for a specific purpose, audience and context, (DoE, 2003: 31),
- being able to demonstrate the use of advanced writing strategies and techniques for first drafts (DoE, 2003: 32),
- and the capability to reflect on, analyse and evaluate work (DoE, 2003: 33).

This chapter addresses self-regulated learning in order to determine the nature of self-regulation as viewed by Zimmerman (2000). As Zimmerman views self-regulated learning from a social cognitive perspective, social cognitive theory is discussed (§3.2), where after self-regulated learning is defined from a social cognitive perspective (§3.4), followed by a discussion of Zimmerman's (2000) model of self-regulation (§3.5).

The value of self-regulated learning is emphasised by the importance of developing not only subject knowledge, but higher-order thinking skills, critical thinking skills and life-long learning, so that learners are able to prepare themselves for an ever-changing world (Zimmerman, 2002: 64). Because of the changes in worldwide technology and writing, learners are expected to adapt the skills that they already possess and learn new skills in order to cope (Zimmerman, 2002: 64).

3.2 Social Cognitive Theory

Albert Bandura, who developed social cognitive theory, views a person as self-organised, proactive, reflective and self-regulated. The basis of Bandura's (1986: 18) social cognitive theory is that human functioning is the product of a dynamic, reciprocal and triadic interaction between personal (e.g. learner's knowledge, metacognition, motivation and anxiety), behavioural (e.g. self-observation and self-reaction) and environmental variables (e.g. academic outcomes, modeling and feedback from educators) (see Figure 3.1).

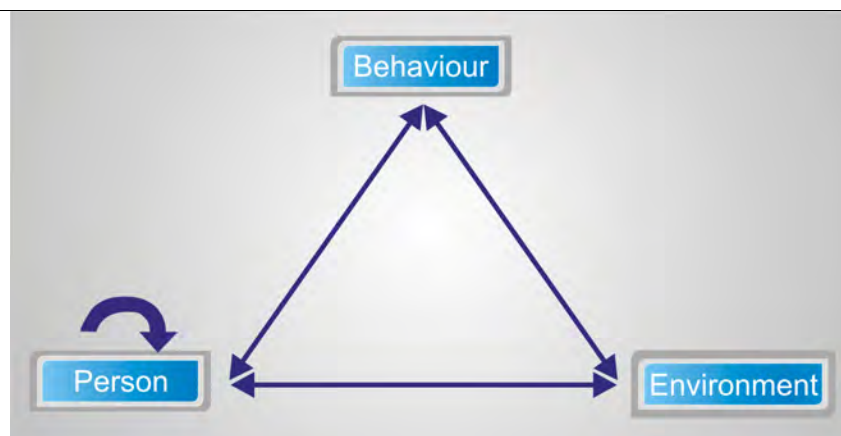


Figure 3.1 The relationship between the three classes of determinants in triadic reciprocal causation (Bandura, 1986: 24)

Bandura's Social Cognitive Theory (1986) is built on the Social Learning Theory tenets of response consequences, vicarious learning and modelling of behaviour (McCormack Brown, 1999). People learn by watching others and they learn what to expect, if they perform a similar action by observing others (Pressley & McCormick, 1995: 213).

Bandura (1986: 18) states that the capacity to symbolise makes one uniquely human. Symbols provide learners with the ability to transform fleeting experiences into internal

models that serve as a guide for future actions. This ability to use symbols provides one with a powerful tool for understanding and managing one's own environment (Bandura, 1986: 18). Learners process experiences and other symbols into cognitive models of reality that serve as guides for judgement and action. By drawing on their knowledge of symbols, learners are able to plan courses of action (Bandura, 1986: 18). It is through symbols that learners give meaning, form and continuity to the experiences that they have had, in essence, symbols serve as a vehicle of thought. By symbolically manipulating the information derived from personal and vicarious experiences, learners then gain an understanding of fundamental relationships and so expand their knowledge (Bandura, 1989: 9). Through the medium of symbols, learners are able to communicate with others, at any distance in time and space (Bandura, 2001: 3). This has particular relevance for the study at hand. Cellular telephony (§2.6.4) Short Messaging Service (SMS) (§2.6) and the language (§2.7) it has generated can be classified as symbolic in nature and provides opportunities to experience and interact with others, however remote they are, at any moment in time or in any place.

Linked to a learner's ability to generate meaning from symbols, is the ability to exercise forethought. Bandura (1986: 19) states that the forethought capability is rooted in symbolic action, allowing learners to motivate and guide their actions, anticipatorily. Learners do not simply react to their environment, nor are they simply governed by their experiences. Rather, their behaviour is purposive and regulated by forethought (Bandura, 1986: 19). A learner's capacity for forethought is also embedded in self-regulatory mechanisms which give rise to expectancies and the ability to evaluate an anticipated outcome (McCormack Brown, 1999).

Social cognitive theory gives rise to three assumptions that concern the reciprocal character of the influences between personal, behavioural and environmental variables, enactive and vicarious learning, and learning and performance (Pintrich & Schunk, 1996: 160; Schunk & Zimmerman, 1997: 197).

3.2.1 Reciprocal determination

Bandura (1986:18) describes reciprocal determination as triadic and states that 'in the social cognitive view people are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocity in which behaviour, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other (§3.3).

As seen in Figure 3.2, social cognitive theory posits that human behaviour is determined by the reciprocal interactions between behavioural, environmental and personal factors, and is seen as bidirectional self-orientated feedback loops (§3.3.) (Bandura, 1986: 24; 1999: 23; McCormack Brown, 1999) with bi-directional interactions taking place between one's thoughts, emotions and biological properties (i.e. personal factors) and one's actions (i.e. behaviour) (Bandura, 1986: 23; 1989; 1999: 23) (see Figure 3.1). This 'behavioural-personal factor' (Pintrich & Schunk, 1996: 161) is influenced by self-efficacy (i.e. a personal factor) as it affects, either negatively or positively, a learner's achievement behaviour. An example of this in SMSing is when a learner begins composing an SMS message, he/she may feel capable of writing a message that will be understood, and so goes on to complete the final goal of writing an SMS that will elicit a response from the receiver of the SMS.

Bi-directional interactions also take place between the environment and personal characteristics (Bandura, 1986: 24; 1989). This 'personal-environmental factor' can be highlighted using the example of learners with disabilities (Pintrich & Schunk, 1996: 162). Educators may make judgements of learners who have disabilities, based on attributes typically associated with the disability rather than on what the learner is actually able to do. Teacher feedback (i.e. environmental factor) in turn influences a learner's self-efficacy (i.e. personal factor), either negatively or positively. In SMSing, a learner may receive feedback from a peer (i.e. environmental feedback) regarding the legibility or comprehensibility of the SMS message which he/she sent, which in turn could influence how the learner views his/her ability to write a good or comprehensible SMS.

Another bi-directional interaction takes place between behaviour and the environment (Bandura, 1986: 24; 1989). While composing an SMS, a learner may feel the need to adapt his/her behaviour in order to control the environment in which an SMS is composed (i.e. move to a quieter area in order to eliminate external distractions, such as noise or conversations, so that a good or comprehensible SMS may be constructed).

In Figure 3.2, a small internal loop is indicated when viewing personal factors (Pintrich & Schunk, 1996: 162), which indicates that personal factors often influence each other. When a learner constructs an SMS and realises that the strategy he/she has employed is successful (i.e. the use of an editing strategy to ensure that an SMS is comprehensible), he/she is more likely to be confident in the existing SMS skills that are possessed, because he/she feels that what is being written will be understood by the receiver of the message.

The fact that human behaviour is unidirectional does not imply that all the sources of influence are equal in strength. Social Cognitive Theory recognises that some sources of

influence are of stronger strength than others and that they do not all occur simultaneously (Bandura, 1999: 23; McCormack Brown, 1999). These differences in interaction are based on the individual, the particular behaviour being examined and the specific situation in which the behaviours occur. McCormack Brown (1999) notes that this makes the Social Cognitive Theory model of reciprocity extremely complex. Inherent to the notion of reciprocal determination is the idea that people are not automatically shaped by the environment but function as contributors to their own motivation, behaviour and development within a network of reciprocally interacting influences

3.2.2 Enactive and vicarious learning

Learning, as 'a change in behaviour or behavioural potential brought about by intervening experiences' (Schunk, 1989: 85) is viewed through the reciprocal lens of social cognitive theory, as a process that occurs 'enactively' (e.g. through actively composing an SMS) or vicariously (e.g. by observing others compose an SMS) (Schunk, 1989: 85; Schunk, 2000b: 81; Woolfolk, 1998: 225).

Enactive learning occurs when a learner physically and mentally completes a task, on his/her own, while experiencing the consequences of his/her actions (Pintrich *et al.*, 1996: 163), with successful actions being retained and unsuccessful actions being discarded. A learner may endeavour to teach him/herself how to compose an SMS or use abbreviations in an SMS message, retaining those skills that are successful (i.e. a comprehensible SMS being sent) and discarding those that do not result in a successful outcome.

Bandura (1986: 19) affirms that virtually all learning phenomena, resulting from direct experience can occur vicariously by observing other people's behaviour and its consequences. The capacity to learn by observation, or modelled behaviour, enables people to acquire rules for generating and regulating behavioural patterns without having to form these patterns gradually. It therefore comes as no surprise that humans have evolved an advanced vicarious learning capability (Bandura, 1989: 21; Bandura, 2001: 5).

This capacity for observational learning enables a learner to develop knowledge and skills which has been communicated by modeling influences. Vicarious learning occurs in the absence of overt performance by learners and derives from observing live models (in person), human or nonhuman symbolic models (persons or cartoon characters on television) or print models (schematics or written instructions on how to assemble products) (Schunk, Pintrich, & Meece, 2010: 128) This vicarious observation often accelerates learning (Schunk,

1989: 85) as it saves learners from experiencing the negative consequences of failed behaviours (Schunk *et al.*, 2010: 128).

Enactive and vicarious learning often work in combination to facilitate the acquisition of cognitive skills (e.g. learners learn how to operate a cellular telephone keypad on their own, but when they encounter difficulties with the skill required, they then observe how others compose a message) (Schunk, 1989: 85).

The separation of learning and the performance of previously learned behaviours is another assumption that marks social cognitive theory.

3.2.3 Learning and performance

Social cognitive theory distinguishes between learning and performance of previously learned behaviours (Bandura, 1986; Schunk, 1989: 85). Schunk (1989: 86) stresses the fact that learning cannot occur unless learners acquire metacognitive knowledge in the form of declarative, procedural and conditional knowledge. These forms of knowledge will determine how learners select and integrate skills for specific purposes (Bandura, 1999: 26). Learners acquire declarative knowledge in the form of facts (e.g. knowing what action is necessary for the composition of an SMS). They also acquire procedural knowledge (e.g. knowing how to compose an SMS) as well as conditional knowledge (e.g. recognising the correct style to use when writing an SMS to a friend, parent or teacher) needed when writing an SMS for a specific audience. These forms of knowledge often are not independent, as they do not exist in isolation, but work together to ensure learning occurs (e.g. competence in composing an SMS requires knowledge of a keyboard, knowledge of how to compose a message and knowledge of when it is appropriate to do so).

Declarative, procedural, and conditional knowledge can be acquired but not demonstrated when learning occurs (Schunk, 1989: 86). A learner may learn different skills related to composing an SMS (e.g. by observing others inputting text into a cellular telephone) but will only demonstrate that knowledge when it is important to do so (e.g. actually composing an SMS) (Schunk, 2001). Zimmerman (1989b: 332) combines procedural and conditional knowledge into what he has dubbed, 'self-regulative' knowledge. The reason for treating this as a single entity lies in the use of the feedback loop (see Figure 3.2 and §3.2.1).

By adapting the example cited by Zimmerman (1989b: 332), a learner's use of self-regulative knowledge can be highlighted when a learner uses a goal-setting strategy for composing a particularly long SMS. The learner may find it easier to sub-divide the large piece of

information into proximal smaller pieces, in order to ensure that the relevant information is passed on correctly. The use of this strategy has both procedural (i.e. chunking information) and conditional aspects (i.e. knowing what information should be grouped together). It is also assumed that declarative and self-regulative knowledge are interactive. These metacognitive knowledge underpinnings of self-regulation are vital in ensuring that learning is translated into performance. Not only should a learner have self-regulative knowledge, rooted in the ability to set goals, but a learner should also be able to employ strategies, which will allow the learner to apply their knowledge and reach their goals.

3.3. Triadic forms of self-regulation using self-oriented feedback loops

Using the social cognitive assumption of reciprocal determination (see Figure 3.1 and §3.2.1) as a foundation, Zimmerman (1990:5) highlights the constantly changing factors inherent in the behavioural, environmental and personal aspects of self-regulation. The self-orientated feedback loop is defined as the interactions between the personal, behavioural and environmental processes which are reciprocal in nature (§3.2.1) and involve self-observing and strategically adjusting performance processes (Zimmerman, 2000a: 14). Self-orientated feedback loops occur when learners monitor their use of learning strategies and adjust their behaviours accordingly (Zimmerman, 2000a: 14) if necessary.

Zimmerman (2000a: 14) distinguishes between three forms of self-oriented feedback loops: behavioural, environmental and covert self-regulation (§3.2).

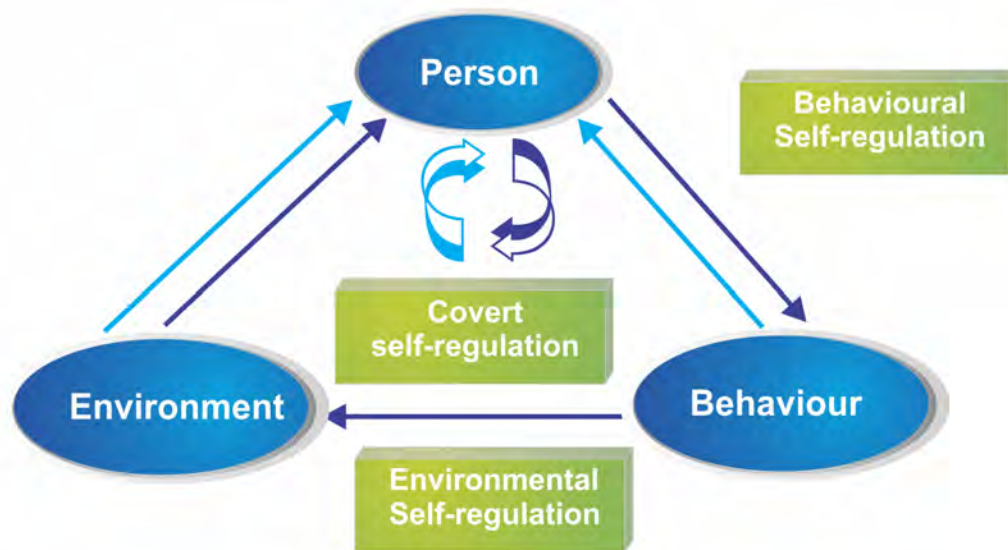


Figure 3.2 Triadic forms of self-regulation (Zimmerman, 2000a:15)

Behavioural self-regulation for example relies on the *self-orientated feedback loop* as the cyclic process in which learners' monitor the effectiveness of their learning strategies and react to this feedback in a number of ways, whether it be covertly or overtly (Zimmerman, 1990b: 5). When attempting to compose an SMS, a learner may choose a strategy (i.e. checking their spelling in the SMS) which would suit the type of SMS he/she would aim to compose, adapting his/her behaviour according to the audience they may be addressing (e.g. the use of abbreviated language with no emphasis on spelling checks, for peers). If a learner realises that the style of his/her SMS may not suit the intended audience, the learner would then adjust his/her style by changing the behaviours associated with writing the SMS.

Environmental self-regulation refers to a learner's ability to observe and then adjust environmental conditions or outcomes in order to maximise his/her learning activities (Zimmerman, 2000a: 14) (i.e. leaving a noisy environment and moving to a quieter room in order to learn effectively). A learner's proactive use of an environmental strategy that involves a change in behaviour requires that the actual behaviour of the learner be altered in order for learning to be successful. The continued use of a structured setting for learning would depend on the learner's perception of its effectiveness in assisting learning. This would be conveyed reciprocally through an environmental feedback loop (Zimmerman, 1989b: 330). If the learner found it too noisy (i.e. the noise of a television) to study effectively then he/she would move to a quieter area (i.e. the bedroom).

Covert self-regulation involves monitoring (i.e. rereading an SMS and checking for spelling mistakes) and adjusting cognitive and affective states (i.e. correcting spelling errors found in an SMS) (Zimmerman, 2000a: 14). As monitoring is a metacognitive process, it has an effect on other personal processes, as the use of these processes are reciprocally regulated through a covert feed-back loop (Zimmerman, 1989b: 330). The accuracy and constancy of a learner's self-monitoring of these triadic sources of self-control directly influence the effectiveness of his/her strategic adjustments and the nature of his/her self-beliefs. Covert self-regulation relies on the give-and-take nature of the triad. This indicates that a learner's covert processes reciprocally affect each other. The self-orientated triadic feedback loop is assumed to be open as it functions proactively in order to increase performance by raising goals and seeking more challenging tasks (Zimmerman, 1990a: 5; 2000a: 14).

Using Bandura's (1986) idea of triadic reciprocity as a foundation, Zimmerman (1989b: 329) propagated the idea that in order to meet the criteria of being self-regulated, 'a student's learning must involve the use of specific strategies to achieve academic goals on the basis of self-efficacy perceptions'. Self-regulated learning strategies are thus actions and processes that are directed at acquiring information or skills that involve agency, purpose and instrumentality perceptions, which include using methods such as organising and transforming information, self-consequating, seeking information and rehearsing or using memory aids (Zimmerman, 1989b: 337; Zimmerman, 1990b: 7).

According to the social cognitive perspective there are four distinct stages of development regarding self-regulated strategies (Puustinen & Pulkkinen, 2001: 278; Zimmerman, 2000a: 29). The first stage in the development of self-regulatory strategies involves a learner modeling his/her strategy by observing a competent model. Imitation of the modelled behaviour leads to feedback concerning the success or failure of the attempted strategy use and this is the second stage of strategy development. The third stage of strategy development involves the independent application of the strategy by the learner and is referred to as self-control. Self-regulation is the final stage of strategy development and refers to the skills and strategies that learners use in differing and changing situations. Environmental variables will influence the choices that learners will make regarding when to employ a strategy (Puustinen *et al.*, 2001: 278).

3.4 Definitions of self-regulated learning

Models of self-regulation which are grounded in social cognitive theory, define self-regulated learning as a goal-orientated process that emphasises the constructive and self-regulated

character of self-regulation (Muis, 2007:175). Models within this social cognitive framework, e.g. Bandura's Social Cognitive view of self-regulation (Bandura, 1986), Boekaert's Model of Adaptable Learning (Boekaerts, 1999), Pintrich's General Framework for Self-regulated learning (Pintrich, 2000), Schunk's Social Cognitive Theory and self-regulation (Schunk, 1989) and Zimmerman's Social Cognitive Model of Self-regulation (Zimmerman, 2000a), suggest that monitoring, regulating and controlling one's learning include cognitive, motivational and social factors.

Self-regulated learning is defined as the manner in which a learner *systematically and cyclically uses metacognitive, motivational and behavioural strategies to proactively seek out information and master it* (Archer, 1998; Ertmer & Newby, 1996: 9; Paris & Paris, 2001; Pintrich & De Groot, 1990; Zimmerman, 1989b: 329; 1990a; 1998b: 2).

Bandura (1994: 71) defines self-regulation as the *exercise of influence over one's own motivation, thought processes, emotional states and patterns of behaviour* while Zimmerman (2000a: 14) defines self-regulation as *self-generated thoughts, feelings, and actions or behaviours that are planned and cyclically adapted to the attainment of personal goals*.

From a social cognitive perspective, Schunk (1989:83) and Pintrich (2000:453) assign a prominent role to goal-setting in their definitions of self-regulated learning. Schunk (1989:83) defines self-regulated learning as *learning that occurs from students' self-generated behaviours systematically orientated toward the attainment of learning goals*, while Pintrich (2000:453) states that *self-regulated learning is an active, constructive process, whereby learners set goals for their learning, and then attempt to monitor, regulate and control their cognition, motivation and behaviour, guided and constrained by their goals and the contextual features of their environment*.

According to Boekaerts (1999:447), *self-regulated learning is a powerful construct in that it allows researchers, firstly to describe the various components that are part of successful learning: secondly, to explain the reciprocal and recurrent interactions that occur between and among the different components, and thirdly, to relate learning and achievement directly to the self, that is, to a person's goal structure, motivation, volition and emotion*.

Central to these definitions is the importance of self-determined beliefs and the commitment to reaching academic and personal goals. Schunk's (1989), Pintrich's (2000) and Zimmerman's (2000) definitions are based on Bandura's earlier personal agency formulation and are rooted in the social cognitive assumption of reciprocity. The importance of the 'self-orientated feedback loop' (§3.3) is evident in Zimmerman's (2000:14) definition. Schunk

(1989:83) refers to 'systematically orientated behaviours' and Pintrich (2000:453) refers to 'monitoring' of behaviours, which also allude to the reciprocal nature of self-regulation. The emphasis in Pintrich (2000:453), Schunk (2000b:633) and Zimmerman's (2000:14) definitions of self-regulated learning, is on proactivity. Students, who are proactive, are aware of their strengths and weaknesses because they are guided by personally set goals and task related strategies (Pintrich, 2000: 453; Schunk & Ertmer, 2000: 633; Zimmerman, 2002: 66). Zimmerman (1989b: 331) and Schunk (1989: 88) note that self-regulation comprises three sub-processes: self-observation, self-judgment and self-reaction. What these sub-processes bring to the table, is an analysis of the triadic account of self-regulation, where personal influences are assumed to be influenced by environmental and behavioural pressures (Zimmerman, 1989a: 11).

Inherent in these social cognitive definitions of self-regulation is the fact that a learner's behaviour is motivated and regulated by a set of internal standards and self-evaluative reactions, to these standards. These standards and evaluative reactions begin with self-observation, a bidirectional process, between internal standards and evaluative reactions, by which a learner evaluates his/her own behaviour (Bandura, 1986: 336). An example of this would be when a learner engages in self-observation of his/her ability to compose an SMS message. By using a set of internal standards (e.g. I am able to spell correctly or make myself understood by using abbreviated language), he/she is then able to use evaluative reactions (e.g. I composed a good SMS, so I am now able to send it), to determine the success or failure of their attempt to compose an SMS message. Having a personal set of standards will allow the learner to judge his/her own behaviour (Bandura, 1986: 340), while the development of evaluative standards and judgemental skills establishes a learner's capability for self-reflective influences (Bandura, 1986: 350). These self-regulatory standards are what provide the potential for self-directed changes in their behaviour. The manner and degree to which learners self-regulate their own actions and behaviour involve the accuracy and consistency of their self-observation and self-monitoring, the judgements they make regarding their actions, choices and attributions, and, finally, the evaluative and tangible reactions they make to their own behaviour through the self-regulatory process (Pajares, 2002).

Zimmerman (2000a: 14) stresses the fact that self-regulation also depends on self-beliefs (or self-efficacy) and affective reactions (doubts and fears about specific performance contexts). Pintrich (1999:462) and Schunk (1989) found that motivational beliefs underscore self-regulated learning, stating that self-efficacy beliefs, task value beliefs and goal orientations are essential in sustaining self-regulation.

Zimmerman's (2000:14) definition of self-regulation is reliant on the cyclical functioning of self-regulatory processes, and as such, the triadic forms of self-regulation underscore the development of Zimmerman's (2000) model of self-regulation. For the purposes of this study, Zimmerman's (2000:14) definition of self-regulation will be used. This definition states that self-regulation is the *self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals*. The cyclical nature of self-regulation as addressed by Zimmerman in his definition, and his discussion of 'self-orientated feedback loops' lends itself to an analysis of the self-regulatory aspects of SMS. Specifically, this study aims to determine the capacity (i.e. through quantitative surveys and questionnaires, and qualitative interviews) that an individual has to adjust his/her situational (i.e. physical setting), performance (i.e. ability to compose an SMS) and individual (i.e. goals related to composing an SMS) variables and interactions, reciprocally, in order to realize the goal of composing a comprehensible SMS.

3.5 Phases and sub-phases of self-regulation

From a social cognitive perspective, self-regulation processes and the accompanying beliefs fall into three cyclical phases: forethought, performance/volition and self-reflection processes (Zimmerman, 2000a: 16). It is assumed that learners will regulate their SMS behaviours and beliefs within these three cyclical phases: forethought (processes that precede, for example the act of SMSing and the efforts to SMS); performance control (processes occurring during the act for example, of composing an SMS) and self-reflection (processes occurring after learning or for example, the performance of writing an SMS) (Cleary & Zimmerman, 2004: 538). What distinguishes effective from ineffective forms of self-regulation is the quality and quantity of self-regulation processes (Zimmerman, 2000a: 15). It is essential to understand how these three processes are structurally interrelated and cyclically sustained. Zimmerman (2000a: 16) proposes the following model of self-regulated learning as a way of explain how the three processes of forethought, performance/volition and self-reflection are cyclically maintained and adjusted (see Figure 3.3):

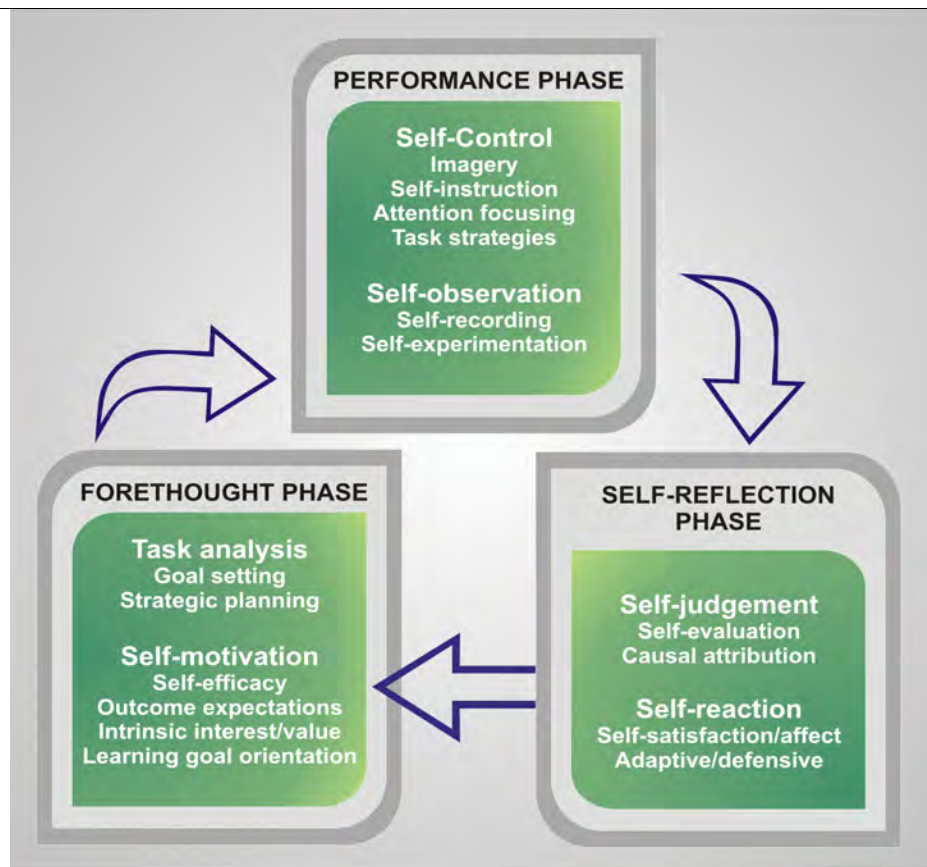


Figure 3.3 Cyclical phases of Self-regulation (Zimmerman, 2002: 65)

3.5.1 Phase 1: Forethought

The forethought phase sets the stage for learning (Cleary & Zimmerman, 2004: 538) in addition to aligning the influential processes that precede efforts to act (Zimmerman, 2000a: 16). The ability to have forethought about actions enables learners to motivate and guide their actions, in an anticipatory manner (Zimmerman, 2000a: 16). This anticipation gives rise to certain expectations and evaluations of expected outcomes (McCormack Brown, 1999). Thinking about an action requires a learner to analyse the task ahead, by setting goals regarding the task and by devising a plan to reach these goals (Pintrich, 2000: 454). The forethought phase involves the beliefs, attitudes and processes that a learner possess prior to engaging in the process of writing an argumentative essay (e.g. their beliefs regarding their ability to write a good argumentative essay, their attitude toward the writing event and the processes required to write an argumentative essay) (Cleary & Zimmerman, 2004: 538). According to Zimmerman's Social Cognitive Model of Self-Regulation (2000), the capacity for

forethought action is embedded in self-regulatory mechanisms or sub-processes (Zimmerman, 2000a: 16) which are identified as: task analysis and self-motivational beliefs.

3.5.1.1 Sub-process 1: Task analysis

As part of the forethought phase, task analysis refers to the ability one has to focus one's attention on the specifics of the task content and how to use that content effectively. The key variables in task analysis are the setting of goals and the formulation of a strategic plan for the completion of the learning task (Zimmerman, 1989b: 332; 2000a: 16).

- **Goal setting**

Imperative to analysing a task is the ability to set goals. Goal setting refers to deciding on specific outcomes of learning and performance (Cleary & Zimmerman, 2004: 538). The goal systems of highly self-regulated learners are organised hierarchically, so that proximal goals operate as proximal regulators of more distal outcome goals (Zimmerman, 2000a: 17). Before writing an academic essay, a learner may for example decide to select a goal for the essay (e.g. to use a proper introduction, body and conclusion for the outline of the essay) and then develop a plan (e.g. dividing the essay into sections (i.e. the introduction) and working through the planning systematically). As can be seen in this example, goal setting is closely related to strategic planning as it is redundant to set a goal for one's self, if there is no plan in place to reach that goal. Once a learner has analysed a task and set a goal for him/herself, the next form of task analysis comes to the fore: that of strategic planning (Zimmerman, 2000a: 17).

- **Strategic planning**

According to Zimmerman (2000:17) when a learner begins strategic planning, the first thing to do would be to select methods that are appropriate for the task at hand and the setting, as well as appropriate methods for attaining the goals set. These methods will enable the learner to master or perform a skill optimally (Lubbe, Monteith, & Mentz, 2006: 283). The learner will then select specific self-regulative strategies which are purposive processes directed at acquiring the task or skill at hand (Zimmerman, 1989b: 329). Appropriately selected strategies enhance performance by aiding cognition, controlling affect and directing motoric execution. The planning and selection of strategies requires cyclical adjustments because of fluctuations in covert personal, behavioural and environmental components of self-regulation (Zimmerman, 2000a: 17). An example of this would be when the learner plans which methods to use when writing an academic essay (i.e. using a mind map to organise

thoughts or conducting an Internet search for information on an essay topic) and then selects the specific self-regulatory strategies (§3.5.2.1) (i.e. organising or elaborating) which will allow him/her to execute the writing process successfully.

3.5.1.2 Sub-process 2: Self-motivational beliefs

Setting goals for a task and strategic planning are of little use to a learner if he/she is not motivated as there are various motivational beliefs that underpin this specific sub-phase in the forethought process (Zimmerman, 2000a: 17). The sub-process of self-motivation identified in Zimmerman's model (2000:17) involves self-efficacy beliefs, outcome expectations, intrinsic interest or value and learning goal orientation (Zimmerman, 2000a: 17; 2002: 68; Zimmerman, Bandura, & Martinez-Pons, 1992: 673). Self-motivation stems from a learner's beliefs about learning, such as self-efficacy beliefs about having the personal capacity to learn and outcome expectations about the personal consequences of learning.

Motivational beliefs have wide ranging effects, and can influence task approaches and affect the development of metacognitive skills (Klassen, 2001: 4). Learners who enjoy writing and who are more motivated to write, have higher self-assessments than learners who do not enjoy writing (Hammann, 2005: 17). Pintrich (1999: 467) and Yen *et al.* (2005: 350) conducted research which highlighted and concur with the importance of motivation in self-regulated learning, particularly the importance of self-efficacy, task value (intrinsic value) and goal orientation. The greater the motivation and self-regulation of learners, the higher the academic achievement produced by those learners (Zimmerman, 2000b: 88).

- **Self efficacy**

The first process variable within the sub-phase of self-motivation is self-efficacy (Zimmerman, 2000a: 17). Bandura (1986:391) defined self-efficacy as *people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances*. Self-efficacy is *'one's perceived capabilities for learning or performing actions at designated levels* (Schunk *et al.*, 2010: 379) referring to the personal beliefs that a learner has about having the means to learn or perform effectively (Bandura, 1986: 348; Klassen, 2001: 5; Pintrich & Schunk, 1996: 88; Zimmerman, 1989b: 329; 2000a: 17). In order to involve themselves meaningfully in the learning process, learners require sufficient self-efficacy (Margolis & McCabe, 2003: 17).

Research conducted by Pintrich (1999: 467) and Pintrich and de Groot (1990: 37) found that self-efficacy is positively associated with self-regulated learning and performance while

Zimmerman's (1992:673) research found that a determinant of a learner's aspirations is their belief in their academic self-efficacy. Zimmerman *et al.* (1992: 672) found that prior academic achievements correlated with self-efficacy beliefs. Higher levels of self-efficacy beliefs are indicative of students who participate more readily, work harder, persist longer and have fewer adverse emotional reactions when they encounter difficulties than do those who doubt their capabilities (Zimmerman, 2000b: 86). Struggling learners often have low rather than high self-efficacy beliefs regarding their academic achievement (Klassen, 2001: 22; Margolis *et al.*, 2003: 7). Linking with what Zimmerman (2000b:87) has found, Margolis *et al.*(2003: 11) and Klaasen (2001: 21) suggest teaching learners who have low self-efficacy, learning strategies in order to increase their self-efficacy and motivation levels.

Self-efficacy has also been shown to have an impact on the motivation that learners have to complete a writing task (Hamann, 2005: 17). Low levels of self-efficacy often cause a learner to insist that they do not have a 'gift' for writing, while learners that display high self-efficacious behaviours will employ higher self-assessments and use strategies which indicate an increased awareness of the writing process (e.g. text organisation strategies).

Zimmerman (2000a: 18; 1992: 674) states that the link between self-efficacy and goal setting cannot be ignored. A learner's perceived efficacy to achieve motivates his/her academic attainment by influencing personal goal setting, and self-efficacy, in tandem with goal setting, contributes to a learner's academic attainment. The more capable students judge themselves to be, the more challenging goals they set themselves (Zimmerman, 2000b: 87).

Self-efficacy also works hand in hand with other aspects of self-regulation. Self-efficacy motivates the use of learning strategies, positively influences whether a learner self-monitors or not and also affects the self-evaluation standards learners use to judge the outcomes of their self-monitoring (Zimmerman, 2000b: 87).

Self-efficacy and outcome expectations also work hand-in-hand and are highly positively correlated (Pintrich *et al.*, 1996: 91). In essence, self-efficacy can be seen as the foundation on which a learner's performance is built. What a learner believes about his/her capabilities and what he/she expects to be the final outcome of a performance, cannot be separated into two separate processes.

- **Outcomes expectations**

Bandura (1997: 22) draws a distinction between outcomes expectations and self-efficacy. Outcomes expectations are *beliefs about the consequences of one's actions* (Schunk *et al.*,

2010: 378) and refers to a learner's beliefs about the ultimate ends of his/her performance (Pintrich *et al.*, 1996: 177; Zimmerman, 2000a: 17). Zimmerman (2000a: 17) also illustrates this dissimilarity by highlighting the differences between these concepts. Outcomes expectations refers to a learner's conviction about the eventual outcome of his/her performance (Pintrich *et al.*, 1996: 177; Zimmerman, 2000a: 17) while self-efficacy refers more to a learner's personal expectations regarding the completion of the task (Lubbe *et al.*, 2006: 283). Zimmerman *et al.* (1992: 672) states that outcome expectations in the form of anticipatory social and self-evaluative consequences operate as significant contributions to personal attainments. If a learner believes that the ultimate outcome of a performance is imbedded in performing masterfully, this should provide an intrinsic motivation to perform to the best of his/her ability (Zimmerman, 2000a: 18).

An example of this may be when a learner is planning an academic essay. Whether or not he/she believes that a good essay is reliant on how the essay is planned, organised and edited rigorously, will determine whether or not the learner has the necessary intrinsic motivation to write a well planned and constructed essay. The self-efficacy (i.e. beliefs regarding whether a learner can write or not) determines the learner's outcome expectations (i.e. a good or bad essay) and whether or not the learner is motivated to write that essay or not.

- **Intrinsic interest or value**

Intrinsic interest or intrinsic value is seen as a component of task value and is defined as *the enjoyment people experience when doing a task, or their subjective interest in the content of a task* (Schunk *et al.*, 2010: 63). Intrinsic interest (also known as 'valuing') refers to a learner's valuing of the task for its own merits or its own sake (Pintrich *et al.*, 1996: 257; Zimmerman, 2002: 68). Pintrich and de Groot (1990: 37) report that intrinsic value is strongly related to the use of cognitive strategies and self-regulation. Riveiro *et al.* (2001: 570) and Rozendaal *et al.* (2001: 284) found in their research that females are more intrinsically motivated and self-regulated than males. It has also been found that task value beliefs, of which intrinsic value is a component, are positively related to self-regulated learning (Pintrich, 1999: 467). Intrinsic motivation is also linked to the manner in which a learner approaches a performance i.e. his/her goal orientation.

- **Goal orientation**

Social cognitive theory emphasises goal orientation as a key motivational process (Schunk *et al.*, 2010: 174). Goal orientation is defined as 'an integrated pattern of beliefs that leads to

different ways of approaching, engaging in and responding to achievement situations' (Schunk *et al.*, 2010: 184). Goal orientation refers to valuing the process of learning for its own merits (Zimmerman, 2002: 68) as well as being labelled learning or mastery or task goal orientation (Zimmerman, 2000a: 18).

Goal orientation is represented by goal orientation theories as two distinct orientations, *mastery goal orientation* and *performance goal orientation* (Schunk *et al.*, 2010: 184). Mastery goal orientation is 'a focus on learning, mastering the task according to self-set standards or self-improvement, developing new skills, improving or developing competence, trying to accomplish something challenging and trying to gain understanding or insight', while performance goal orientation is defined as 'a focus on demonstrating competence or ability and how ability is judged relative to others' (Schunk *et al.*, 2010: 184).

Pintrich (1999: 467) found that a mastery goal orientation is the most adaptive goal orientation for self-regulated learning. A mastery goal for writing will focus on mastering a task (e.g. writing a good introduction) and measuring this goal against a self-set standard will allow a learner to adapt his/her effort in order to master the skill.

Riveiro *et al.* (2001: 569) caution that it is important to remember that educators must distinguish between different goal orientations that contribute to a learner's success, as this could lead to difficulties as self-regulated learning could be deterred by the disparity of predominant goals. Seijts *et al.* (2004: 238) agree and found that goal orientation is a determinant of performance, while goal setting has a greater influence on performance. In other words, how learners approach a task (i.e. whether they set mastery or performance goals for themselves) will determine whether they perform a task successfully or not, while goal setting, will influence the actual outcome of the performance of the task (i.e. whether or not a learner is able to write a good introductory sentence).

None of these motivational sub-processes occur in isolation though. Self-efficacy beliefs influence goal setting. The more learners believe themselves to be capable, the higher goals they set for themselves and the more committed they remain to those goals. When learners fall short of attaining their goals, those who are self-efficacious increase their efforts, while self-doubters withdraw (Zimmerman, 2000a: 17). Goals can reciprocally affect self-efficacy as self-regulated learners often feel more motivated because they have adapted hierarchical process goals for themselves whose progressive mastery provides them with immense satisfaction rather than requiring them to suspend any sense of success until a final outcome goal is attained. Process accomplishments provide a sense of intrinsic motivation that can compliment and even surpass extrinsic outcomes. This process goal orientation has been

shown to sustain motivation and improve acquisition and performance better than an outcome goal orientation (Zimmerman, 2000a: 18) as it is the valuing of the process of learning for its own merits (Zimmerman, 2002: 68).

These forethought processes will influence a learner's propensity and ability to engage in the performance/volition control phase sub-processes of self-control and self-observation (Cleary & Zimmerman, 2004: 538). During the performance/volition control phase, learners actively engage in a specific learning activity and employ self-control and self-observation processes to maximise their ability to write an argumentative essay. Self-control processes help guide the writing of an essay by including sub-processes like self-instruction, imagery, attention focusing and task/learning strategies.

3.5.2 Phase 2: Performance or volitional control phase

Once a learner has analysed a task and decided on a goal and a strategic plan to complete this task, it is necessary to self-regulate the performance aspects of the endeavour. Volition, known as 'effort regulation', is a learner's propensity to sustain focus and effort toward a goal, despite possible disruptions (Chen, 2002: 14).

During the performance/volition control phase, sophisticated self-regulated learners will implement the strategic plan they decided on as outcome of the forethought phase (e.g. break down the essay format into an introduction, body and conclusion) and will use various self-monitoring techniques (e.g. referring to the mind-map of essay plan and checking the construction of each paragraph ensuring the use of a topic sentence) to keep track of and gauge the success of their writing process (Cleary & Zimmerman, 2004: 539). Zimmerman (2000a:18) singled out: two types of performance or volitional control processes that are important for self-regulated learning: self-control and self-observation.

3.5.2.1 Sub-process 3: self-control

Self-control is seen as one of the most important components of self-regulation and includes all the processes necessary to complete a task and attain goals (Zimmerman, 1998b: 2). These processes of self-instruction, imagery, attention focussing and task strategies, all aid in focusing attention on the task at hand and optimising a learner's effort (Zimmerman, 2000a: 18). Self-control also refers to the specific methods or strategies that were selected during the forethought phase (Zimmerman, 2002: 68) which help learners to focus on the task and optimise their efforts (Zimmerman, 2000a: 18).

- **Self-instruction**

Self-instruction is a self-control process which is integral to the self-control sub-process of the volition phase of Zimmerman's model (2000). Self-instruction involves overtly or covertly describing how to proceed as one executes a task (Zimmerman, 1998b: 4; 2000a: 18), while including descriptions of how the learner describes to him/herself, the manner in which the task should be executed (Zimmerman & Risemberg, 1997c: 117).

While a learner is describing how to proceed with a task, Zimmerman (2000a: 19) suggests two more processes which can help the learner with self-control: using imagery and focussing attention.

- **Imagery**

Imagery or the forming of mental pictures, (see Figure 3.3) is a widely used self-control technique to assist encoding and performance in learning (Zimmerman, 2000a: 19). This self-control technique is used when a learner attempts to codify information and leads to effective learning when used in conjunction with other forms of information coding such as the use of graphic diagrams used to explain a concept (Zimmerman, 2000a: 19). An example of the use of imagery in SMS text construction is the inclusion of an emoticon in the text message in order to indicate emotion (§2.7.3).

- **Attention focusing**

Attention focusing can be seen as strategies one uses to improve one's concentration and screen out other covert or external events (Zimmerman, 2000a: 19). Earlier choices and previous mistakes together with the negative thoughts attached to these, affect attentional-focusing techniques (Zimmerman, 1998b: 3). Self-regulated learners will however, ensure that these negative thoughts do not have an impact on how they focus their attention on the learning task. In contrast, less self-regulated learners are prone to allowing these less positive aspects influence their attentional control negatively (Zimmerman, 1998b: 3).

Environmental structuring to eliminate diversions or slow-motion task execution to assist coordination, are other attention focussing strategies. Research has found that low achievers tend to be easily distracted from a task than high achievers (Zimmerman, 1998b: 3) while expert performers have reported using a wide variety of techniques to improve their attentional control, such as environmental structuring to eliminate distractions while learning (Zimmerman, 2000a: 19).

If a learner is able to use self-instruction, imagery and attention focusing techniques to control the level of his/her performance, the next process in the performance phase of Zimmerman's model (2000) provides the concrete application of strategies to aid in this control. The use of task strategies assists the learner in reducing the task to manageable parts and enabling a learner to organise the performance successfully (Zimmerman, 2000a: 19).

- **Task strategies**

Self-regulation has been found to be highly correlated with strategy use (Pintrich *et al.*, 1990: 38). Integral to the performance phase of Zimmerman's Social Cognitive Model of Self-regulation (2000) is the inclusion and use of task or learning strategies by a learner. Task strategies 'assist learning and performance by reducing a task to its essential parts and reorganising the parts meaningfully' (Zimmerman, 2000a: 19). In order to qualify as being self-regulated according to Zimmerman (1989b: 329) learners' must involve the use of specific strategies to achieve their academic goals on the basis of self-efficacy perceptions.

Self-regulated learning strategies are actions and processes that are directed at acquiring information or skills that involve agency, purpose and instrumentality perceptions. This includes using methods such as organising and transforming information, self-consequating, seeking information and rehearsing or using memory aids (Vincente & Arias, 2004: 147; Zimmerman, 1989b: 337; 1990b: 7).

Research conducted by Rozendaal *et al.* (2001: 283) and Zimmerman *et al.* (1992: 674) indicate that in order to function as a self-regulated learner, learners require a broad catalogue of strategies. Adding to this, Pintrich and de Groot (1990: 38) found that learners who were more cognitively engaged in using learning strategies, performed better academically, than learners who tended not to use strategies.

Students' use of self-regulated learning strategies depend not only on their knowledge of strategy and strategy use but also upon their metacognitive decision-making processes (Zimmerman, 1989b: 332). This has been proved in a study conducted by Howard *et al.* (2001: 5) when it was discovered that the metacognitive self-regulation sub-components of knowledge of cognition, objectivity and problem representation were important for problem solving, which has considerable implications for self-regulated learning. Gourgey (2002: 30) has found that students who use metacognitive strategies, notably identifying goals, self-monitoring, self-questioning, reasoned choice of behaviours and self-assessment are more academically successful than students who do not use these strategies.

Zimmerman and Martinez-Pons (1986: 620; 1988: 285) identified 14 major self-regulatory strategies necessary for academic success. These specific strategies represent a repertoire of methods that effective learners can use to overcome difficulties in learning (Nota, Soresi, & Zimmerman, 2004: 199). The effectiveness of each of the 14 self-regulated learning strategies can be explained based on the proposed triadic model. The purpose of each strategy is to improve students' self-regulation of their (a) personal functioning, (b) academic behavioural performance and (c) learning environment (Zimmerman, 1989b: 337). Zimmerman and Martinez-Pons (1986: 619), Zimmerman (1989b: 339) and Wolters (2003: 14) identify these strategies as:

- *Self-evaluating strategies* include statements indicating student-initiated evaluations of the quality or progress of their work.
- *Organising and transforming strategies* comprise statements indicating student-initiated overt or covert rearrangements of instructional materials to improve learning.
- *Goal-setting and planning strategies* incorporate statements indicating students setting of educational goals or sub-goals and planning for sequencing, timing and completing activities related to these goals.
- *Seeking information strategies* take account of reports indicating student-initiated efforts to secure further task information from non-social sources when undertaking an assignment.
- *Keeping records and monitoring strategies* contain statements indicating student-initiated efforts to record events or results.
- *Environmental structuring strategies* encompass assertions indicating student-initiated efforts to select or arrange the physical setting to make learning easier.
- *Self-consequating strategies* incorporate reports indicating student arrangement or imagination of rewards or punishment for success or failure.
- *Rehearsing and memorising strategies* include proclamations indicating student-initiated efforts to memorise material by overt or covert practice.
- *Seeking social assistance* includes statements indicating student-initiated efforts to solicit help from peers, teachers or adults.
- *Reviewing records strategies* include statements indicating student-initiated efforts to reread notes, tests, or textbooks to prepare for class or further testing.
- The final self-regulatory strategy falls into the category of '*Other*' which consist of statements indicating learning behaviour that is initiated by other persons such as teachers or parents and all unclear verbal responses.

3.5.2.2 Sub-phase 4: self-observation

The second type of performance/volition control involves self-observation (Zimmerman, 2000a: 19). This refers to a learner's tracking of specific aspects of his/her performance, the conditions that surround it, and the effects that it produces. Although this skill may seem basic, it is not, as the amount of information involved in complex performances can easily inundate naive self-observers and typically leads to disorganised and cursory self-monitoring. Experts are able to track themselves selectively at a detailed process level (Zimmerman, 2000a: 19).

There are a number of features of self-observation that can influence its effectiveness.

- The temporal proximity of a learner's self-observations is a critical variable because self-feedback that is delayed precludes a learner from taking corrective action in a timely fashion (Zimmerman, 2000a: 20). An example of this in writing is when a learner self-observes directly after writing a particular section (i.e. an introductory sentence) in order to ensure that it is correct. This implies that the learner has to employ self-evaluation (§3.5.3.1) in order to determine whether or not the introductory sentence is indeed correct.
- The second feature of self-observation is the informativeness of performance feedback. Practicing a skill in a standardised setting (i.e. a quiet room) can enhance informativeness of the results. If a learner is attempting to write an introductory paragraph, for example, the informativeness of the self-feedback that the learner gives him/herself is reliant on the standardised example that he/she is trying to emulate.
- The third feature is the accuracy of self-observation (Zimmerman, 2000a: 20). Learners who misperceive or distort their actions cannot correct themselves appropriately. If a learner is attempting to write an introductory paragraph in an argumentative essay, he/she must use a standard against which he/she measures the accuracy of writing, in order to ensure accuracy of self-observation.
- The fourth feature of self-observation involves the valence of behaviour. Monitoring negative aspects of one's functioning can diminish a person's motivation to self-regulate these activities. Feedback about deficits can undoubtedly lead to self-criticism (Zimmerman, 2000a: 20). Also setting hierarchical process goals during forethought, facilitates selective self-observation because these goals focus on specific processes and proximal events (Zimmerman, 2000a: 20).

- **Self-recording**

Self-recording is a common self-observational technique that can increase the proximity, informativeness, accuracy and valence of feedback. Records can capture personal information at the point that it occurs, structure it to be most meaningful, preserve its accuracy without the need for intrusive rehearsal and provide a data base for discerning evidence of progress (Zimmerman, 2000a: 20). Through observation of covert thought patterns and emotional reactions, as well as overt performance, learners begin to notice recurrent patterns in their functioning. If any regularities in a pattern can be discerned, these repetitions in behaviour can be used to identify influential features of a learner's environment (Zimmerman, 2000a: 20). For those learners who can alter their behaviour or modify their environment, these insights can lead to corrective courses of action. An example of self-recording is when a learner keeps a journal of his/her writing experiences or makes lists of words or concepts that he/she does not understand.

- **Self-experimentation**

Self-observation can lead to cycles of self-experimentation (Zimmerman, 2000a: 21). When self-observation of natural variations in behaviour does not provide decisive diagnostic information, learners can engage in personal experimentation by systematically varying aspects of their functioning that are in question. Systematic self-observation, using self-experimentation, can lead to greater personal understanding and to better performance/volition control (Zimmerman, 2000a: 21).

This second phase of performance/volition control is of critical importance because it is here that the learner gathers information that will ultimately be used to evaluate the effectiveness of the strategic plan and to improve further learning attempts (Cleary & Zimmerman, 2004: 359).

3.5.3 Phase 3: self-reflection phase

Social cognitive researchers view self-regulation as a domain-specific level of acquired skill that depends on several task-dependent processes, such as planning, strategizing, developing motoric proficiency and self-monitoring (Schunk, 1997: 199). Building on the element of self-regulatory capabilities, is the element of reflection. Being self-reflective is a capability that is intrinsic to humans. Self-reflectivity entails a paradigm shift on the part of the learner, in order to change behaviours, from old behaviours to new behaviours, so that self-regulation in learning can occur (Bandura, 1989: 60; 2001: 4). This paradigm shift enables

people to analyse and reflect on their experiences and to think about their own thought processes (Bandura, 1989: 58; 2001: 4; McCormack Brown, 1999). In order for learning to take place, an environment of thinking and reflecting must exist (Lerch, Bilics, & Colley, 2006: 2). Reflection is seen as a metacognitive process (Bull & Kay, 2008: 7) which plays a very important part in self-regulation.

The learners' ability to use reflection as a metacognitive skill depends on their existing body of metacognitive knowledge, as reflection acts as a vehicle, which transports this knowledge and develops a strategy. Without reflection, learners may not learn to discriminate in applying procedures, may fail to recognise conditions when strategies may be appropriate for use, and may fail to transfer knowledge and strategies to different tasks. The relationship between reflection and self-regulation is seen as that at each stage of the self-regulation process, expert learners utilize the metacognitive knowledge that they have gained from previous experiences to identify the current terms of cognitive, motivational and behavioural strategies that are required. Reflection helps self-regulated learners identify those strategies that aid their learning most, assisting them to apply better and more advanced strategies as learning becomes more complicated and tasks more difficult (Ertmer & Newby, 1996: 17). Schunk and Ertmer (2000: 645) advise that self-reflective practice should be researched more thoroughly in order to motivate learners to engage in self-reflection in order to realise the full potential of this central component of self-regulation.

3.5.3.1 Sub-phase 5: self-judgement

Zimmerman (2000a: 21) states that self-judgement 'involves self-evaluating one's performance and attributing causal significance to this performance', while self-evaluation refers to 'comparing self-monitored information with a standard or goal'. Judging the adequacy of one's performance is relatively easy when it produces simple objective outcomes. However, high levels of expertise depend on the judgements using refined criteria.

Ultimately, the adaptive quality of one's self-reactions depends on the sensitivity of his/her self-judgements and knowing this, experts set challenging criteria for themselves (Zimmerman, 2000a: 21).

- **Self-evaluation**

Self-evaluations allow a learner to judge how well he/she performs a task by systematically comparing that performance against specific mastery criteria, earlier levels of behaviour or

against the performance of others (Cleary & Zimmerman, 2004: 539). For example, once a learner has planned, written and revised (or edited) a written assignment, he/she might compare the structure of the essay with previous attempts or measure the 'success' of their attempt by comparing the assignment with examples of other learners' work or rubrics provided by the educator.

A learner may use the following criteria to evaluate his/her performance when writing an essay: mastery, self, normative or collaborative criteria. Mastery criteria (i.e. the academic prerequisites of the assignment) involves comparing a attempt at writing an essay with the teacher's rubric: previous performance or 'self-criteria' involves comparisons of current performance with earlier levels of one's behaviour (i.e. comparing previous writing attempts with one another), normative criteria involve social comparisons with the performance of others (i.e. comparing the current essay with the examples provided in by others) and collaborative criteria is usually used in group endeavours (i.e. collaborative discussions involving the steps involved in planning or writing an essay) (Zimmerman, 2000a: 22; 2000b: 84).

- **Causal attributions**

Attributions can be defined as a learner's perceived causes of his/her learning outcomes (Schunk *et al.*, 2010: 375). According to the Attribution Theory, the motivational dimensions of attributions (see Figure 3.4) can be classified into three causal dimensions: (a) a locus, (2) a stability and (c) a controllability dimension (Schunk *et al.*, 2010: 97).

LOCUS				
STABILITY	INTERNAL		EXTERNAL	
	Controllable	Uncontrollable	Controllable	Uncontrollable
Stable	Long-term effort	Aptitude	Instructor bias/ favouritism	Ease/ difficulty of school or course requirements
Unstable	Skills/ knowledge Temporary or situational effort for exam	Health on day of exam Mood	Help from friends/ teacher	Chance

Figure 3.4 Achievement attributions classified by locus, stability and controllability dimensions (Schunk *et al.*, 2010: 101).

The locus dimension refers to whether the cause for success or failure is attributed to an internal or external factor, while the stability dimension indicates how stable the cause is over time whereas the controllability dimension indicates how controllable the cause is (Schunk *et al.*, 2010: 97). An example of this in academic writing is that effort and ability are both classified as internal causes, while task difficulty is classified as external causes (Schunk *et al.*, 2010: 97). Learners who employ a locus of internal control believe that their grades depend on their own ability, skill and effort whereas external control students believe that their grades are just a function of luck, the teacher or some other source of external influence (Schunk *et al.*, 2010: 98).

Self-evaluative judgements are linked to causal attributions about results, such as whether poor performance is due to one's limited ability (i.e. internal locus of control) or too difficult a question on a test (i.e. external locus of control) (Zimmerman, 2000a: 22). Attributional judgements are pivotal to self-reflection because attributions of errors to fixed ability, prompt learners to react negatively and discourage efforts to improve.

Attributional judgements depend on the self-evaluation of factors such as self-efficacy and environmental variables, and are not mechanical or automatic (Zimmerman, 2000a: 22). Forethought processes also impact attributional judgements (Zimmerman, 2000a: 23). Learners, who plan to use a specific strategy during forethought and implement its use during performance, are more likely to attribute failures to that strategy rather than low ability. Because strategies are perceived as correctable causes, attributions to their use protect the learner against negative self-reactions and foster a strategically adaptive course of subsequent action (Zimmerman, 2000a: 23).

3.5.3.2 Sub-process 6: self-reaction

The self-reaction attributes (see Figure 3.3) that a learner has toward his/her achievement or success is the sixth sub-process of Zimmerman's (2000) model of Self-regulation. This sub-process only comes to the fore after the self-observation (§3.5.2.2) and self-judgement (§3.5.3.1) processes have been applied by the learner. The self-reactions of self-satisfaction and adaptive/defensive responses (see Figure 3.3) affect forethought processes cyclically and often dramatically impact future courses of action toward one's most important goals and away from one's deepest fears (Zimmerman, 2000a: 24). Self-reactions refer to the various reactions such as self-praise, self-criticism, adaptive strategy use, goal adaptation and goal persistence (Schunk *et al.* 2010: 156; Zito *et al.* 2007: 90).

- **Self-satisfaction**

Self-satisfaction involves the *perceptions of satisfaction or dissatisfaction and associated affect regarding one's performance* (Zimmerman, 2000a: 23). When self-satisfaction is made conditional on reaching adopted goals, learners give direction to their actions and create self-incentives to persist in their efforts. Thus, a learner's motivation does not stem from the goals themselves, but rather from self-evaluative reactions to behavioural outcomes (Zimmerman, 2000a: 23). A learner's level of self-satisfaction also depends on the intrinsic value or the importance of a task. The higher one's level of intrinsic value, the higher one's sense of self-satisfaction once the task has been completed. An example of this may be when a learner finds an interesting topic to write an essay on, or deems it important to write an essay on the specific topic, then the self-satisfaction that this learner will feel on completion of the writing task, should be high. Highly self-regulated people value their intrinsic feelings of self-respect and self-satisfaction from a job well done more highly than acquiring material rewards (Bandura, 1997).

- **Adaptive inferences**

Adaptive or defensive inferences are conclusions about how a learner needs to alter his/her self-regulatory approach during subsequent efforts to learn or perform (Zimmerman, 2000a: 23). Adaptive inferences are important because they direct people to new and potentially better forms of performance self-regulation, such as by setting higher goals for themselves or choosing a more effective strategy (Zimmerman *et al.*, 1992). In contrast, defensive inferences (i.e. helplessness, procrastination, task avoidance, cognitive disengagement and apathy) serve to primarily protect the learner from future dissatisfaction and aversive affect, but unfortunately, they also undermine successful adaptations.

These self-reactions affect the forethought processes cyclically and often impact one's future courses of action by positively motivating one toward the accomplishment of one's most important goals and away from situations that cause one apprehension (Zimmerman, 2000a: 24). Enhanced self-motivational beliefs form the basis for people's sense of personal agency about continuing their cyclical self-regulatory efforts and eventually attaining their goals. In contrast, self-dissatisfaction reactions reduce one's sense of efficacy and intrinsic interest in pursuing the task further.

In essence, after engaging in, for example, the composition of an academic essay, a sophisticated self-regulator will typically evaluate his/her task performance relative to a standard (i.e. previous attempts or modelled examples), attribute poor performance to faulty

strategies (e.g. their strategic plan) and will make strategic adjustments before the next attempt at writing an essay (e.g. eliminate environmental distractions, use more time, plan more extensively, and use wide-ranging writing strategies) (Cleary & Zimmerman, 2004: 359).

3.6 Conclusion

Self-regulated learning has been described as the degree to which learners are metacognitively, motivationally and behaviourally involved in their own learning (Zimmerman, 1990a: 4). Figure 3.2 illustrates the various phases and sub-processes of the Social Cognitive Model of Self-regulation as proposed by Zimmerman (1998b: 3; 2000a). Zimmerman distinguishes between three phases in the self-regulation of learning behaviour. These phases are the forethought, performance and self-reflection phases. These phases cover six sub-processes including amongst others task analysis, self-motivation, self-control, self-evaluation and self-reaction.

The disturbing lack of self-regulation among underachievers indicates that relatively few students attain high levels of academic self-regulation despite the many benefits (Zimmerman *et al.*, 1997c: 121). Underachievers do not use the same self-regulatory processes as achievers. While underachievers are impulsive and do not use their time effectively, achievers manage their study time well. Achievers tend to set higher specific and proximal goals while the underachievers set lower academic goals for themselves.

WRITING**4.1 Introduction**

Skilled writing is commonly viewed as a difficult and demanding task, requiring extensive self-regulation and attentional control to manage the environment, the constraints imposed by the writing topic and the processes involved in composing (Graham, Harris, & Troia, 1998: 20). Skilled writers are often more active and write more confidently, they have a repertoire of strategies, ask questions and take notes. They consider rhetorical goals such as purpose, audience, and genre and understand the conventions of the genre. These writers use sub-goals such as motivation and allocate time and resources judiciously. They divide the writing process into parts, relate information to previous knowledge and can detect, diagnose and fix problems in their written texts (King, 2002: 9).

To become a proficient writer, one must become self-regulated. Self-regulated writers are distinguished by their awareness of strategic relations between regulatory processes and the use and deliberate practice of self-regulative strategies, to achieve learning and writing goals (Zimmerman, 1990; Zimmerman & Kitsantas, 1999:242).

The effects of electronic technologies have had an effect on the manner in which learners write, so much so, that it has been noted that in order to be literate, a learner needs to have control over a wide range of electronic media (Hyland, 2009: 58). This chapter aims to explore the social cognitive approach to self-regulation in writing (§4.4), focussing specifically on the self-regulatory strategies needed to be a proficient writer (§4.4.1). As this thesis deals primarily with SMS as a form and process of writing, the strategies associated with composing an SMS text message will be explored. Before the discussion of self-regulation in writing could begin, it was imperative to define writing (§4.3) and highlight the different approaches to the study of writing: the text-orientated approach (§4.3.1), the writer-orientated approach (§4.3.2) and the reader-orientated approach (§4.3.3). As this study was conducted in an English medium high school in the North West Province, the language of instruction was also defined (§4.2).

4.2 Standard English

Before a discussion of the influence of SMS language on writing skills in English can ensue, one must determine which variation of English is used in schools, as the school that is represented in this study is an English Home Language school, where English is the medium of instruction. Two distinct variations of English (i.e. for written and verbal communication) are used in the classroom situation: Standard English and the more cognitively demanding Academic English. Academic English is a sub-set of Standard English. Academic English is the English that is used in the cognitively demanding situations in which self-regulation is to be studied. Although both variations will be defined, Standard English will be the focus of this chapter.

When one begins a discussion about the standardisation of a language, the question begs, what is language? Language is a written code used for communication or for the display of data (Marx, 2006), with the two types of language that exist being Mathematical language (numerical) and Natural language (English). Language has two separate aspects, those of form and meaning (Heinemann, 2004: 1), while the physical forms of language can be divided into the phonic (spoken) or graphic (written) forms. Language is an abstract, mental system shared by its native speakers. In addition, these speakers produce various dialects of a given language (Speicher & Bielanski, 2000: 147). According to Heinemann (2004: 9) and Crystal (1997: 401) there are several properties of language, which are unique to human communication. These are: displacement, arbitrariness (ERIC Digest, 2000), discreteness, duality, productivity and cultural transmission.

A *standard language* is a language whose norms and conventions belong to education, print, officialdom and high culture, while a *language standard* is a level below which usage should not fall (McArthur, 1999: 164). Yet, a 'standard language' has only been standardized to a certain extent, with a quarter of the words in an English dictionary displaying alternate spellings (Crystal, 2006b: 83). A 'standard' written language is usually encountered in literature and in the formal spoken language, and as such, is the variety which is usually preferred (Crystal, 1997: 2). In Great Britain, the standard is called Standard English or the *Queen's English*, whilst in the United States of America, it is called *Standard American English* or *National Network English* (Speicher & Bielanski, 2000: 148).

Increasingly, English is the language of instruction in English-dominant countries and countries where the societal language is not English (Bunch, 2006: 284). It has also been noted that the language which should be used at school is often equated with what is known as 'literate' language, which is more explicit, complex and cognitively demanding (Schleppegrell, 2004: 116). This form of cognitively demanding English is known as

Academic English. Academic English has a decontextualised register that relies on a broad knowledge of words, concepts, language structures and interpretation strategies, and includes the skills of summarising, analysing, extracting and interpreting meaning, evaluating evidence, composing and editing (ERIC Digest, 2000). Using Academic English encompasses all the competencies of colloquial English with extra requirements added (Scarcella, 2003). It is important to remember that simplified texts cannot serve as examples of Academic English according to the ERIC Digest (2000). When one begins to delve into the realm of academic language proficiency, one cannot fail to mention CALP (Cognitive Academic Language Proficiency), which is the level of language proficiency required of English Second Language Speakers (Cummins, 2003).

Debates surrounding the language of schooling very often centres on two distinct aspects of language usage. The first aspect focuses on how language, in this case English, is used for academic purposes and how it varies from its putative, non-academic counterpart, the 'colloquial' variation, and how language minority students seem to be fluent in the colloquial variation of a language, yet struggle with Academic English (Bunch, 2006: 285). This study will concern itself with the first part of this debate, in an attempt to understand the dichotomy of informal language usage as pitted against the formal or academic version of the same language.

A debate has been sparked in the attempt to define the concept 'Standard English' (SE). English is a Germanic language in the Indo-European family of languages (Crystal, 1997: 303) with Germanic languages being used as a first language by over 550 million people, largely because of the world-wide role of English. The West Germanic language tree comprises English, Frisian, German, Yiddish, Netherlandic and Afrikaans (Crystal, 2003: 14). Standard English came to be established in the 18th century (Crystal, 2005c: 2) and according to Heinemann (2004:83), Standard English is just one of a variety of Englishes. Crystal agrees with this statement when he says that English develops along a continuum of Englishes (Crystal, 2003: 66).

Standard English is the English taught in schools and that is used nationally, thereby making it 'reputable and current' (Davies, 1999: 171). Standard English is 'the English that with respect to spelling, grammar and vocabulary is substantially uniform though not devoid of regional differences, that is well established by usage in the formal and informal speech and writing of the educated (Johnson & Johnson, 1998: 303), that is widely recognised as acceptable wherever English is spoken and understood (Davies, 1999: 172). The English which is used in schools and in English-speaking countries for official purposes on television and on the radio can be labelled the standard (Heinemann, 2004: 83). Standard English is the language which gives people access to the rest of the English-speaking world (Crystal,

2002a: 16) while *Printed English* usually provides the foundation of the standard (Crystal, 2003: 148). It has also been stated that Standard English refers to the written language only and not the spoken (Davies, 1999: 172). Johnson and Johnson (1998:303) take a rather elitist stance when they define Standard English as 'a dialect with the most prestige and/or influence within the English-speaking community, which is used to perform various official and ceremonial functions in spoken and written forms.

According to Speicher and Bielanski (2000: 148), there are four underlying assumptions concerning Standard English (SE): Spoken SE is equivalent to written SE; spoken and written codes are equally amenable to standardization; SE is that language of the workplace and as such, is essential to social mobility; and SE is, or ought to be, the language of the classroom. These assumptions are just that though, as *Standard Written English* (SWE) is very different to *Standard Spoken English* (SSE) (Speicher & Bielanski, 2000: 151), although research has been conducted on SWE, the role of SSE requires more attention.

With the spread of English around the world, English has acquired many different standards (Johnson & Johnson, 1998: 304). Crystal (2002a: 280) identifies what he calls *World Standard English* and states that English is the only language which is in a position to adopt the role of the world's first language. Because of this, the demand for a language medium which is universally intelligible has been widely voiced (Crystal, 2002a: 280). This English, which is used in its standard form as a global or international language, makes it a powerful variety because of its ability to cut across social, regional and national boundaries (Heinemann, 2004: 83). Yet, the question of the legitimacy of local Standard English has been questioned due to the global spread of English (Davies, 1999: 174).

A further variety of English of relevance to this study is South African English (SAE). English has been influenced by the British settlers who arrived in South Africa towards the end of the 18th century. Although there were many regional accents (London, Midlands and Northern), discernable in the early South African English accent, a more homogeneous accent has emerged (Crystal, 2002a: 261). English has also become the second language of the Afrikaners and an African variety of English has also developed. Although English has always been a minority language in South Africa, it garnered respect from the resident population as the voice of protest and self-determination, as a means of achieving an international voice, and uniting themselves with other black communities (Crystal, 2002a: 263).

English is taught in South African schools either as a subject or it is used as the language of learning (LOL) (Heinemann, 2004: 142). As a subject, it is taught either as a first language (home language) or as a second language (additional language).

In the English classroom, the language that the English educators use (Standard English) does not reflect the language of their learners, a language which is influenced by technology. These learners often converse and communicate in a form of written and spoken English that has not been standardised – Short Messaging Service ('texting') (§3.4). In an English Home Language classroom at a school in the North West Province in 2006, the researcher noted that SMS language is influenced by the slang, jargon and colloquialisms of the spoken word. The researcher noted that SMS language was seeping into the learners' academic work. As SMS language is placed in direct opposition to the belief that written language should not be affected by spoken language (Carrington, 2005: 168), this research deemed it necessary to investigate this phenomenon further. As SMS text messages are 'written' on a cellular telephone keypad, it is essential that the concept 'writing' (§4.3) be defined for the purposes of this chapter. Furthermore, the role of self-regulation (§4.4) in writing is also discussed.

4.3 What is writing?

The word 'writing' is defined by its use as either a noun or a verb. As a noun, writing refers to the actual letters or other forms of script, while as a verb, writing refers to the act or process of writing. As indicated in the discussion of Standard English (§4.2), various forms of written English can be distinguished. The context in which writing occurs is what ultimately determines the 'type' of writing to be used. This study strives to analyse both the form of an SMS and the process of writing an SMS, an informal form of writing, using a self-regulatory analysis.

When attempting to define the concept 'writing', one should consider what the National Curriculum Statement for Home Languages (DoE, 2003) says is required from a learner in order to become a proficient writer. According to the National Curriculum Statement (NCS) for Home Languages, there are very specific learning outcomes for writing. These outcomes may be affected by the use of SMS language. According to Learning Outcome 3 (Writing and presenting), Assessment Standards 1 and 2,

- a learner should demonstrate planning skills for writing for a specific purpose, audience and context and
- identify and explain types of texts to be produced such as imaginative, informational, creative, transactional and multimedia (DoE, 2003:30)
- a learner should demonstrate the use of writing strategies and techniques for first drafts (DoE, 2003:31).

Furthermore, the NCS states in Learning Outcome 3, Assessment Standard 3, that a learner should reflect on, analyse and evaluate their own work, considering the opinion of others, and then present a final product:

- reflect on whether content, style, register and effects are appropriate to purpose, audience and context,
- refine word choice and sentence and paragraph structure and eliminate ambiguity, verbosity, redundancy, slang, offensive language, unnecessary jargon and malapropisms (Department of Education, 2003: 34). The question that now arises is whether the informal, colloquial nature of SMS language (§2.7) will affect a student's ability to write well.

Writing, or 'written literacy', in its most basic form, is associated with 'error-free, standard written English' or in its more complex form, 'the ability to write an essay or five-paragraph theme associated with the belletrist essay tradition in English studies' (Flower, 1994: 1). It must be noted that one's ability to write will be influenced by one's ability to spell, as spelling is a basic skill needed to write well (Moats, 2007).

SMS communication has introduced an entirely new forum for communicating these views. According to Abdullah (2003), 'electronic communication (or e-communication) places new demands on language that leads to interesting variations in written language use, thus creating a new medium for the process of writing'. The variations in written language that have come about through the use of SMS have led to the development of a new form of 'shorthand' written English (§2.7). Chapter 2 has dealt with the characteristics of SMS language, and the purpose of this chapter is to analyse the processes involved with constructing an SMS and to define writing as a process-driven activity. This chapter will not illustrate the different types of writing systems or embark on a discussion of the history of writing. The reason for this is that this study deals primarily with an analysis of SMS language and the self-regulated strategies involved with composing an SMS. The aforementioned topics require rigorous analyses, which do not fall within the scope of this thesis. Rather, a self-regulated view of SMS writing will be investigated, from a social cognitive perspective.

Before an analysis of a social cognitive view of writing can occur, it must be noted that there are different approaches to the study of writing. Hyland (2009: 8) has identified text, writer and reader-orientated approaches to writing.

4.3.1 Text-orientated approach to writing

Texts can be viewed as either objects, discourse or writing (Hyland, 2009: 8-18). As an object, a text (i.e. an SMS message) can be described as an 'autonomous' object which one is able to analyse or describe independently from the context, writer or reader (Hyland, 2009: 8). One could adopt the approach that SMS could be viewed as an object, and thus be analysed independently of the context, writer or reader, but as SMS occurs within a social milieu, where meaning in the text is generated by the interaction between the context, the writer and the reader, this would be a very narrow-minded approach. The SMS texts in this study could have been analysed as discourse due to the fact that the discourse approach sees texts located in social actions.

Discourse refers to *language in action, and to the purposes and functions linguistic forms serve in communication. Here the linguistic patterns of texts point to contexts beyond the page, implying a range of social constraints and choices which operate on writers in any situation. The writer has certain goals and intentions, certain relationships to his or her readers and certain information to convey, and the forms of a text are resources used to accomplish these. These factors draw the analyst into a wider perspective which locates texts in a world of communicative purposes and social action, identifying the ways that texts actually work as communication* (Hyland, 2009: 12). A learner has a certain intention when composing an SMS text message, whether that is to convey information or to make practical arrangements. The form of the communication (i.e. an SMS text message) is made up of linguistic forms (i.e. the abbreviated words used in SMS language) which indicate a social milieu (i.e. the network of SMS recipients) that exists beyond the SMS itself. These elements all point to the act of discourse, or language in action. But writing is also seen as a creative process, being more than just a form of communication.

4.3.2 Writer-orientated approaches to writing

Writing is often seen as a imaginative process and it is this view that is encompassed in the Expressivist's view of writing (Hyland, 2009: 18). The Expressivist view sees writing as a personal expression, which encourages self-discovery and cognitive maturation. This view is very subjective and is linked to concepts such as originality, integrity and spontaneity, all of which are 'culturally variable concepts' and are difficult to measure (Hyland, 2009: 20). The study preferred to approach writing as a cognitive process, which involves more than a subjective view of the writing process (§4.3.2.1 and §4.4).

4.3.2.1 Writing as a cognitive process

When approaching writing as a cognitive process, the *process* is what comes to the fore. The composition process extends beyond the borders of creativity and comprises cognitive aspects as well (Hyland, 2009: 20).

According to Hayes and Flowers (1980: 39; 1980: 4), writing can be defined as a *goal-directed, problem-solving process* and state that *a great part of the skill in writing is the ability to monitor and direct one's own composing process*. Hyland (2009: 21) contends that writing processes such as planning, sentence generation and revising must be orchestrated so that the writer can switch attention between these functions and a host of mechanical, substantive and environmental concerns. According to the Flower and Hayes (1980) model, this is accomplished by a control structure, the monitor, which activates and coordinates the interplay among the various elements involved in writing (Graham & Harris, 2000: 3). According to this cognitive model, writers have goals, plan extensively and review their work. The planning, drafting, revising and editing aspects of writing are all recursive activities that are interactive and can occur simultaneously. The plans and text are constantly evaluated through a feedback loop and are monitored (Hyland, 2009: 21).

Bereiter and Scardamalia's comprehensive research programme (1987) is a cognitive model that aims to highlight the difference between novice (i.e. simple knowledge telling) and skilled writers (i.e. knowledge transformations), according to Hyland (2009: 24). Executive control, which is called the 'monitor' in the Flowers and Hayes model, is what accounts for self-regulation (§3.5) and volition processes (§3.5.2) that occur during writing in this model (Graham & Harris, 1997: 102). Writing is decomposed into four main processes; a mental representation of the task, problem analysis and goal setting, problem translation between discourse and content components and resultant knowledge telling (Zimmerman & Risemberg, 1997a: 75).

A study conducted by Kodituwakku (2004: 7) found that three stages were clearly present in the writing process of learners: planning, writing and revising. Process writing begins with 'pre-writing' activities which then lead to drafting or editing exercises. Editing begins when 'the focus moves to spelling, grammar, punctuation, transition words and signal words' (Bello, 1997).

4.3.2.2 Writing as a situated act

'Writing is also a social act that can occur within particular situations', while viewing writing as a 'situated act' allows one to place greater emphasis on the 'performance of writing' and

incorporates a writer's prior experiences and the impact of the immediate the context on writing (Hyland, 2009: 26).

4.3.3 Reader-orientated approach to writing

Reader-orientated approaches to writing focus on the interpersonal functions of language, allowing for the fact that writers engage an interactive audience (Hyland, 2009: 30). A writer takes the reader into consideration when he/she takes the social interaction (§4.3.3.1) of the audience and the discourse community (§4.3.3.2) into account.

4.3.3.1 Writing as a social interaction

Writing becomes a communicative act when one considers the fact that writing is an interaction between writers and readers (Hyland, 2009: 30). The two issues that come to the fore when viewing writing as a social interaction are: audience and intertextuality. A writer might not always be aware of who his/her audience may be, but the 'audience addressed' refers to the intended audience who exist independently of the text, while the 'audience invoked' is the created fiction born in the writers mind (Hyland, 2009: 30). SMS text messages are sent from one person to another, implying that the audience in this case, is an 'audience addressed'. Learners will vary their SMS writing style to accommodate different audiences (Tagg, 2009: 351) and it has been suggested that learners can be taught to write for an audience using SMS (Vosloo, 2009).

The intertextuality of writing refers to a writer's ability to incorporate previous texts into their writing (Hyland, 2009: 33). Manifest intertextuality refers to a writer's ability to incorporate other texts into his/her writing through quotation, paraphrase or irony, while interdiscursivity refers to a writer's use of a set of conventions drawn from a recognisable text (i.e. mimicking the conventions gleaned from other learners' SMS text messages).

4.3.3.2 Writing as social construction

Writers are viewed as members of a discourse community that is composed of groups of readers and writers. *A discourse community is a group of people who have texts and practices in common, whether it is a group of academics, or the readers of teenage magazines. In fact, discourse community can refer to the people the text is aimed at; it can be the people who have read a text; or it can refer to the people who participate in a set of discourse practices by reading and writing* (Hyland, 2009: 35). In terms of SMS texts, the discourse community would refer to the people who have SMS text messages stored on their cellular telephones and the persons who have read these messages.

Although writing can be approached from the point of view of the text, the writer or the reader, there is an approach which gives credence to all the variables in writing, a social cognitive approach to self-regulation in writing. Social cognitive processes involve a writer being aware of a reader's expectations and exhibiting a willingness to devote the personal time and effort necessary to revise text drafts until they communicate effectively (Zimmerman & Risemberg, 1997a: 76)

4.4 A social cognitive approach to self-regulation in writing

Social cognitive theory (§3.2) has been used as the conceptual framework to explain self-regulation in academic achievement (§3.5) (Zimmerman, 1989b; 1998a; 1998b; 2000a). Zimmerman and Risemberg (1997:77) have indicated that social cognitive theory (§3.2) is particularly well suited for the study of writing, as this theory stresses the reciprocal nature of the relationships between the triad of behavioural, environmental and personal self-regulatory influences (§3.2.1), as well as highlighting the role that self-efficacy plays in sustaining motivation and achievement (§3.4.1.2).

Graham *et al.* (1998:22) propose that learners who find writing tasks difficult to complete, should incorporate self-regulatory processes into their writing. Learners who are better self-regulators, have been shown to achieve better results in writing skill tests than less self-regulated learners, according to Lubbe *et al.* (2006: 290).

Self-regulation is a process by which learners transform their mental abilities into academic skills (Zimmerman, 2002) and can be defined as the manner in which a learner systematically uses metacognitive, motivational and behavioural strategies to proactively seek out information and master it (Archer, 1998; Ertmer & Newby, 1996:9; Paris & Paris, 2001; Pintrich & De Groot, 1990; Zimmerman, 1990; 1996:182; 1998:2). Zimmerman and Risemberg (1997a:74) define the self-regulation of writing as the *self-initiated thoughts, feelings, and actions that writers use to attain various literacy goals*, with the primary precept being that skilled writing depends on high levels of self-regulation that is planned, self-initiated and self-sustained (Graham & Harris, 1997: 102).

Self-regulation is thought to enhance writing performance in two ways: (1) self-regulatory mechanisms such as planning, monitoring, evaluating and revising, provide building blocks or subroutines that can be assembled along with other subroutines, such as procedures for producing text, to form a programme for effectively accomplishing the writing task (Graham & Harris, 2000: 4), (2) the use of these mechanisms may act as change-inducing agents, leading to strategic adjustments in writing behaviour (Graham & Harris, 2000: 4; Harris, Graham, & Mason, 2006: 330).

Conversely, however, expertise in writing requires far more than high levels of self-regulation but rather relies on high levels of skill, motivation and self-regulation (Graham & Harris, 2000: 106; Harris *et al.*, 2006: 333). Zimmerman and Kitsantas (1999: 241) state that there are four levels of self-regulation required to become a good writer:

- Observation or modelling of desired skills and behaviours.
- Emulation, which is the adoption of skills gained from feedback received and is the primary source of motivation for a writer.
- Self-control, when a writer is able to use a particular strategy as planned is able to self-monitor the process of writing.
- Self-regulation is the final and highest level with the writer at this level being able to adapt his behaviour to the changing demands of the task, audience and intrapersonal states.

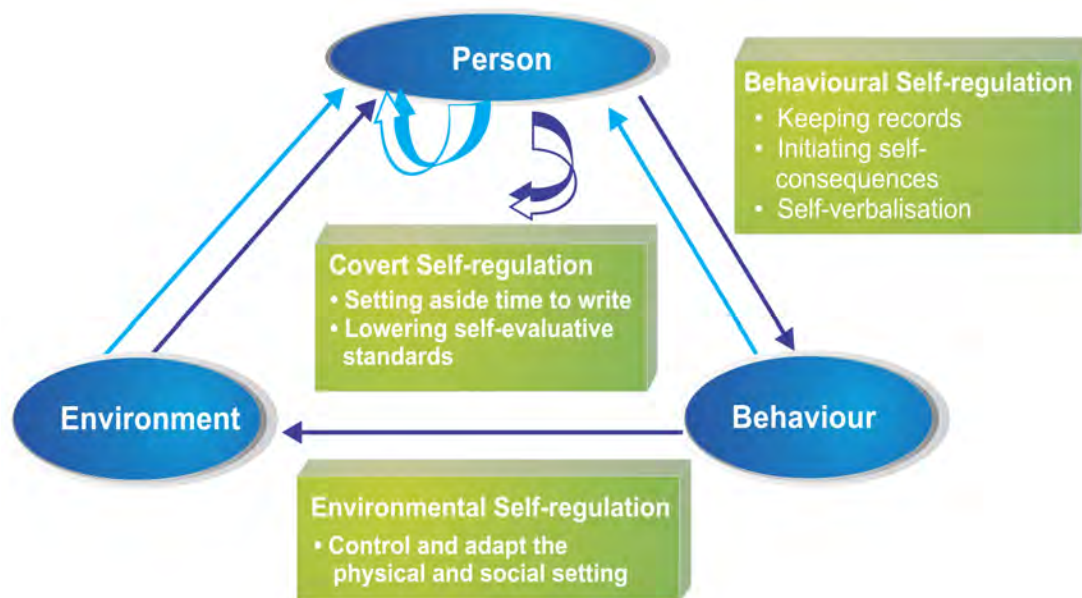


Figure 4.1 Triadic forms of self-regulation in writing

The three general social cognitive categories of the processes used when writing include: environmental (i.e. regulation of the physical or social context of writing), behavioural (i.e. regulation of the overt motoric aspects of writing), and personal processes (i.e. regulation of cognitive beliefs and affective states associated with writing) (see Figure 4.1). These processes interact reciprocally via an enactive feedback loop, involving a cyclic process in which writers monitor the success of the strategies employed and continue, modify, or

abandon what they are doing based on the resulting feedback. The use of these processes is closely linked to one's perceived capabilities (i.e. self-efficacy) to plan and implement the actions necessary to complete successfully the writing task. Furthermore, the importance and use of each form of self-regulation is assumed to vary according to environmental conditions, personal effort and writing outcomes (Graham & Harris, 2000: 4; Zimmerman & Risemberg, 1997a: 77).

This triadic model of self-regulation in writing, which gives equal status to behavioural, environmental and personal processes of writing, is well suited for explaining fundamental questions about how the processes of writing are invoked and sequenced and how a writer's environment and behaviours are orchestrated and managed (Zimmerman & Risemberg, 1997a: 79). The environmental processes (i.e. environmental self-regulation) involved in self-regulation centre on a writer's ability to control and adapt the physical or social setting in which they write (Zimmerman & Risemberg, 1997a: 76). The generation of an SMS, thought very often occurs within a setting that the learner has very little control over. Owing to the fact that SMSing is seen as a social act (§2.3), learners often do not require silence or a special space in order to compose a message. Rather, they are able to construct an SMS, often without even looking at the screen of the cellular telephone. Context-related strategies (i.e. moving to a quieter area) are used and adapted in order to control or adapt the environment (Zimmerman & Risemberg, 1997a: 77).

The behavioural processes involved with self-regulation, or behavioural self-regulation, relate to the writer's ability to adapt the use of explicit motoric activities associated with writing (Zimmerman & Risemberg, 1997a: 76). The use of motoric performance strategies may include keeping records, initiating self-consequences or using a self-verbalisation technique (Zimmerman & Risemberg, 1997a: 81). Ruttle (2004: 77) conducted research which found that 'dialogic' talk underpins all learning and writing activities. A learner, for example, may save certain SMS's that they have sent or received in order to monitor their SMS output, or they may read an SMS out loud, in order to judge the tone or intension of the written words. Strategies such as these may be continued or adapted depending on the feedback received indicating the effectiveness of the behavioural strategy according to Zimmerman and Risemberg (1997:77).

Personal or covert self-regulatory processes pertain to the regulation of a writer's self-regulation cognitive beliefs and affective states associated with writing (Zimmerman & Risemberg, 1997a: 76). Covert strategies, such as setting aside specific time for writing or lowering self-evaluative standards in order to reduce anxiety, are adopted by writers in order to increase writing productivity (Zimmerman & Risemberg, 1997a: 77). SMS, though, is a social activity that does not require any specific time planning or management. This study

aims to find out exactly which of these covert processes come to the fore when learners engage in the cognitive process of composing an SMS, looking specifically at the strategies employed by these writers.

A learner would benefit optimally from the concurrent use of all three forms of self-regulation (Zimmerman & Risemberg, 1997a: 78). As writers, learners must be sensitive to the impact that discrepancies between their environmental, behavioural or internal states have on their ability to self-regulate. Strategic feedback loops do more than enable writer's to be sensitive and adaptive to their output during the course of writing, the resultant feedback alters a writer's conceptions of their self-efficacy. When strategic feedback indicates improved or superior textual output, a writer's self-efficacy is enhanced and when feedback is unfavourable, their self-efficacy is diminished (Zimmerman & Risemberg, 1997a: 78).

Based on the social cognitive processes illustrated by Zimmerman and Risemberg (1997:79), ten common forms of triadic self-regulation have been identified. These processes are illustrated in Table 4.1 on page 88 and 89.

Table 4.1: Triadic self-regulatory processes in writing (Zimmerman & Risemberg, 1997:79)

ENVIRONMENTAL PROCESSES	
1.	Environmental structuring involves selecting, organising and creating effective writing settings, such as sound proof room.
2.	Self-selected models, tutors, or books refer to social sources of writing knowledge and skill, such as learning to use metaphors by imitating a gifted novelist.
BEHAVIOURAL PROCESSES	
3.	Self-monitoring pertains to overt tracking of one's own performance, such as keeping a record of pages of written text.
4.	Self-consequences refer to making a reward or punishment contingent on one's writing accomplishment, such as going out for dinner after completing the first draft of a report.
5.	Self-verbalisation pertains to personal articulation to enhance the process of writing, such as saying a dialogue for a play aloud as one composes
PERSONAL (COVERT) PROCESSES	
6.	Time planning and management pertain to estimating and budgeting time for writing such as reserving a three hour block of time to write each morning.
7.	Goal setting involves specifying the intended outcomes of writing efforts, such as finishing a chapter of a novel within 2 weeks.
8.	Self-evaluative standards involve setting and adhering to specific standards of personal satisfaction regarding one's writing, such as criteria for judging the quality of a concluding

paragraph.

9. Cognitive strategies refer to rule governed methods for organising, producing and transforming written text, such as formulating an outline to guide writing or revising a first draft of paper by varying the structure of adjacent sentences.
10. Mental imagery refers to recalling or creating a vivid mental image of a setting, activity, or character to facilitate written descriptions of it, such as when tennis instructors imagine a service motion as they attempt to describe it in written form

Graham and Harris (1997: 103) offer caveats to Zimmerman and Risemberg's (1997) model of self-regulation in writing. The first caveat is that other models of self-regulated writing are possible (Graham & Harris, 1997: 103). Social cognitive theory is not the only theory that addresses issues in self-regulation. Operant theorists state that self-regulation is motivated by external reward and punishment while phenomenologists contend that self-regulation is motivated by a overall sense of self-esteem. Zimmerman and Risemberg (1997:119) counter that social cognitive theory is unique in the fact that it integrates all the key issues involved in self-regulation into a single triadic model of writing.

The second caveat states that the role of self-regulation in writing may be more modest than commonly assumed (Graham & Harris, 1997: 104). Graham and Harris (1997:104) argue that everyday situations (e.g. writing reminders or a note to a friend) are usually done with little effort and without having to resort to high-level, goal orientated behaviour and cite Scardamalia and Bereiter's (1987) notion of 'knowledge-telling' strategies which are employed by novice writers. Zimmerman and Risemberg (1997b: 116) counter by arguing that spontaneous writing reflects the 'routinization' of self-regulatory processes rather than their absence. Learners only use the self-regulatory processes necessary to succeed at a task. This does not diminish the role of self-regulation but rather highlights the importance of situational feedback which is transactionally governed as the process of writing progresses (Zimmerman & Risemberg, 1997b: 116). This has relevance for the study at hand. SMS text messaging is an informal form of writing that does not seem to require high levels of self-regulation, as a person is able to write a message very quickly, without any planning or editing skills being evident (§2.3.2).

The third caveat presented by Graham and Harris (1997:105) states that expertise in writing requires more than high levels of self-regulation. Rather, expertise in writing requires high levels of 'skill, will and self-regulation'. The final caveat states that attempts to self-regulate are not always successful (Graham & Harris, 1997: 106). This is why social cognitive theorists incorporate triadic feedback in self-regulation because it highlights the use of self-monitoring loops and perceptions of efficacy which influence a writer's level of motivation (Zimmerman & Risemberg, 1997b: 118).

4.4.1 Self-regulated writing strategies

The South African National Curriculum Statement for Home Languages stresses the need for a learner to demonstrate the use of writing strategies and techniques for first drafts (DoE, 2003:31). Teaching learners to become strategic writers has been shown to improve their writing skills, according to Paris and Paris (2001: 92). Within a self-regulatory framework, Graham and Harris (2000: 4) identify self-regulation strategies that writers use to control environmental, behavioural and personal processes. These strategies include goal-setting and planning strategies which involve establishing rhetorical goals and tactics to achieve them. Research has shown that learners who employ goal-setting strategies write longer papers and produce better essays than learners who do not (Paris & Paris, 2001: 92).

Other strategies for self-regulation (§3.4.2.1) identified by Zimmerman and Martinez-Pons (1986) and self-regulation in writing (Graham & Harris, 2000: 4) include seeking information (i.e. gathering information pertinent to the writing topic), record keeping (i.e. making notes), organizing (i.e. ordering notes), transforming (i.e. visualising a character to facilitate written description), self-monitoring (i.e. checking to see if writing goals are met), reviewing records (i.e. reviewing notes or the text produced so far), self-evaluating (e.g. assessing the quality of text or proposed plans), revising (i.e. modifying text or plans for writing), self-verbalising (i.e. saying dialogue aloud while writing or personal articulations about what needs to be done), rehearsing (i.e. trying out a scene before writing it), environmental structuring (i.e. finding a quiet place to write), time planning (i.e. estimating and budgeting time for writing), self-consequating (i.e. eating ice cream as a reward for completing a writing task), seeking social assistance (i.e. asking another person to edit the paper) and selecting models (i.e. emulating the tactics or style of writing of a more gifted author).

Learners who are taught to use self-regulatory strategies achieve greater academic performance (Archer, 1998; Paris *et al.*, 2001: 99; Zimmerman, 1990: 8), so it would be safe to assume that the use of the same strategies in the development of writing would lead to (a) skilled writers are more self-regulated than less skilled writers, (b) developing writers become more self-regulated and (c) teaching such strategies improves the writing performance of developing and struggling writers (Graham & Harris, 2000: 4). The most important strategies to teach in writing are: revising, questioning, use of cues, verbalisation, visualization, checking and monitoring (Beckman, 2002). Research conducted by Hammann (2005: 17) reiterates these findings by highlighting the positive influence that explicit writing strategy instruction (i.e. specifically goal-setting and scaffolding) has on learners self-regulation.

There are also strategies, which are metacognitive in nature, that have been found to assist writers in improving their writing skills. At the heart of these metacognitive strategies lies the

use of metacognitive knowledge. Procedural knowledge is also referred to as methodological knowledge or the knowing 'how' to do something (Ruan, 2004: 106; Schraw, 2002: 4). Procedural knowledge is about using resources strategically and taking various actions or strategies to complete a difficult task and is often represented as heuristics and strategies (Schraw, 2002; Zimmerman, 1989b: 332).

Procedural metacognitive strategies are found to be critical to older students' development of writing expertise (Ruan, 2004: 106). In writing, addressing the needs of readers, self-regulating, other-regulating and self-correcting are examples of procedural metacognition. It includes planning, monitoring, checking, evaluating and revising.

Metacognitive skills include taking conscious control of learning, planning and selecting strategies, monitoring the progress of learning, correcting errors, analysing the effectiveness of learning strategies and changing learning behaviours and strategies when necessary. Strategy training is often proposed in order to teach metacognitive monitoring skills (Lin, Schwartz, & Hatano, 2005: 246) and so improve the procedural knowledge that an individual has.

These procedural metacognitive self-regulatory strategies are planning and evaluating. Studies of skilled writers reveal that the ability to plan develops throughout childhood and adolescence, improving dramatically between the ages of 10 and 14. Older more experienced writers engage in more global as opposed to local planning. In addition, more experienced writers are better able to plan effectively regardless of 'text' content, whereas poor writers are unable to do so (Kodituwakku, 2008: 95; Schraw, 2002: 5). Poor writers were less able than good writers to adopt the reader's perspective and had more difficulty 'diagnosing' text problems and correcting them (Schraw, 2002: 5). Once a learner has identified the specific strategy which he/she wishes to employ, specific strategy instruction must take place.

Paris and Paris (2001: 93) have identified six features inherent in successful strategy instruction. The six key features include providing a rich variety of strategies, providing 'specific' strategy instruction, attributing causal attributions of improved performance to the correct application of the strategy, highlighting that strategies can be modelled from peers, stressing that strategies can be applied to other academic domains and imparting the knowledge that these learned strategies can be embedded in everyday activities.

If one were to teach a learner a specific strategy for editing an SMS text message (e.g. using self-evaluation to determine the quality of the written message in transactional writing), the aforementioned key features could be incorporated in the following manner: A variety of

strategies for self-evaluation should be provided to the learner (e.g. checking the SMS for spelling mistakes or using self-verbalisation to read the SMS out loud to ensure that the sentence makes sense). It is one thing to provide a learner with a variety of strategies to choose from, but if the learner does not understand how to apply that strategy, it is all for nought, as the learner will not use that strategy correctly.

This introduces the second key feature of successful strategy instruction: specific strategy instruction. The educator should teach the learner the specific skills related to editing a text message (e.g. explaining that an SMS text message must be re-read). A further feature that the educator must stress is that learners can model their editing behaviours on how their peers edit, provided that the learners model their behaviours on successful examples of SMS editing (e.g. specific examples of correct SMS's must be provided).

The final two features of successful strategy instruction indicate that the educator needs to inform learners of the fact that these self-evaluative strategies can also be applied to other academic domains (e.g. essay writing in the language classes, or equations in the mathematical literacy classes) and will become embedded in everyday activities (e.g. self-evaluation should eventually become an unconscious reaction to daily events).

4.4.2 Self-Regulated Strategy Development

The importance of the use of strategic strategies in learning and writing has led to the development of a model called Self-Regulated Strategy Development (SRSD) (Reynolds & Perin, 2009: 269). According to Zito *et al* (2007: 79), this model has been influenced by the social cognitive assumption that learning is reliant on the changes that occur in a learner's self-regulation, strategic knowledge, skills and motivation. This model has been developed mainly for learners who experience learning difficulties and learners who struggle to self-regulate. It is also designed to help learners develop and master 'autonomous, reflective, self-regulated use of effective writing strategies; increase knowledge about the characteristics of good writing; and form positive attitudes about writing and their capabilities as writers' (Graham & Harris, 1998: 23). The three major goals for SRSD instruction are (1) to help learners develop the higher-level cognitive processes that are involved in academic progression, (2) to assist learners in broadening their repertoire of self-regulation strategies and (3) to help learners develop positive attitudes about learning (Zito *et al.*, 2007: 80) The Self-Regulated Strategy Development model has been successfully used in research dealing with struggling writers and the relationship between self-regulation and writing according to Zito *et al.* (2007: 80) and Harris *et al.* (2006: 335).

According to Harris, Schmidt and Graham (1997), the SRSD aims to attain three major objectives when used to facilitate writing. The first of these objectives is to assist learners in developing knowledge about writing and the skills involved in the writing process (i.e. planning, writing, revising and editing). The second objective of the model is to support learners in the ongoing development of the skills needed to monitor and manage their writing and the third objective is to promote a learner's development of positive attitudes toward writing and about themselves as writers.

The SRSD model stresses that both learners and educators are active in engaging in 'collaborative' strategy instruction which allows learners to construct knowledge of writing and self-regulation strategies, identify the difficulties that learners encounter when regulating strategic performance and finding ways of developing and sustaining self-regulated strategic performances (Harris *et al.*, 1997). The SRSD model has been shown to specifically improve planning (e.g. brainstorming, information and semantic webbing and organising writing content) and revising strategies (e.g. using peer feedback and revising for mechanics and substance) (Harris *et al.*, 1997).

According to Harris *et al.* (1997), Graham *et al.* (1998:24), Harris *et al.* (2006: 308) and Zito *et al.* (2007: 82), the six stages in the SRSD model aim to: (1) develop background knowledge, (2) discuss, (3) model, (4) memorise, (5) support and (6) enhance independent performance. Using the example of writing an SMS text message that is coherent and easily understood, the six stages of this model could be used in the following manner. In order to develop background knowledge, learners may be asked to discuss the knowledge that they feel is needed and essential to composing a good SMS. Examples of various SMS's may be given to learners in order to verify which of those are deemed to be 'good' SMS's. A discussion will then ensue regarding the goals required to gain or improve the knowledge needed to compose an SMS. Using a TREE (Topic sentence, Reasons, Examine reasons and Ending) or a SPACE (Setting, Purpose, Action, Conclusion and Emotions) planning strategy, an educator may ask learners to consider the audience (Harris *et al.*, 1997) when composing an SMS. The educator will then model the use of the planning strategy, using a thinking-out-loud protocol. Once the educator has modelled the use of the strategy, the learners then engage in discussions, revealing how they would go about composing an SMS text message, using the strategy provided. The learners are then given opportunities in class to memorise the strategy and with support from the educator, they are able to use the strategy in independent performances.

An aspect of self-regulation that is of immense importance for academic achievement is reflection (§3.5.3). The SRSD allows educators to encourage self-reflective practices among learners who are being taught to be self-regulative writers. According to Harris *et al.*

(1998:36) and Harris *et al.* (2006: 335) self-reflective practices typically used in SRSD instruction include monitoring the use of strategies, assessing the consequences of using a strategy, comparing previous behaviours and outcomes with the performance when using strategies, think about how strategies should be applied and modified, identifying behaviours that facilitate strategy learning and evaluating the instructional processes.

The SRSD and Zimmerman's (2000) model of self-regulation (§3.5) are similar in many ways. According to Zito *et al.* (2007: 89), both models highlight the importance of self-efficacy (§3.5.1.2) and aim to improve self-efficaciousness in learners. The three self-regulatory sub-processes of self-observation (§3.5.5.2), self-judgement (§3.5.3.1) and self-reaction (§3.5.3.2) are also incorporated in the SRSD. The first stage of the SRSD (i.e. develop and activate background knowledge) incorporates the self-regulatory aspect of self-monitoring. Learners must be able to set goals for themselves and then monitor the use of the goal setting strategy by using self-statements. The second stage of the SRSD (i.e. discuss it) also incorporates self-monitoring because it encourages learners to discuss current levels of performance. The third major sub-process of self-regulation is self-reaction. In the SRSD, learners are taught to set goals and to monitor their progress toward their goals according to Zito *et al.* (2007: 90). This sub-process assists learners in judging and evaluating their performance on given writing tasks and assists learners in the development of self-regulatory competencies.

4.5 Conclusion

In order to be a good writer, one has to self-regulate writing behaviours. If modern technology has changed the way that we write, and in essence, changed the definition of language usage, what self-regulatory behaviours must a student employ in order to combat the tendency to revert to the informal 'SMS' language that is pervading our society? How is 'SMS' language changing the definition of writing and what does good writing entail?

RESEARCH METHODOLOGY

5.1 Introduction

The purpose of this chapter is to describe the research methods used to investigate:

1. how the nature of the changes in spelling, lack of punctuation and the informal, colloquial nature of SMS communication affect a learner's ability to write formally within the context of a formal SMS and
2. the relationship between a learner's self-regulatory strategies and writing in SMS.

A sequential explanatory mixed-method research design (§5.2.4), rooted in Pragmatism (§5.2.2), was adopted to increase the scope and range of the research to investigate the research problem and related research questions in this study. Using a dominant quantitative design (QUAN) (§5.2.3) and a follow up qualitative design (qual) (§5.2.3) allowed this researcher to investigate the phenomenon of self-regulation in SMS. This chapter describes the outline of the research process according to the following topics: Mixed-method research, quantitative research, qualitative research, ethical aspects and administrative procedures.

5.2 Mixed-method research

A specific research design can be seen as a purposive and systematic plan which incorporates procedures aimed at collecting, analyzing and interpreting data in a scientific manner (Creswell & Tashakkori, 2007b: 58). The research design thus guides the researcher in developing a framework for the use of methods and analytic interpretations of the data obtained from these methods. The research design adopted in this study is a mixed-method research design.

5.2.1 Definition of mixed-method research

Creswell and Garrett (2008a: 322), Burke Johnson and Onwuegbuzie (2004: 17) and Cameron (2008: 1) identify mixed-method research as the 'third movement or wave' in the evolution of research methodology, with this 'movement' growing and evolving out of the

qualitative and quantitative approaches to research in the past 20 years. Mixed-method research has also been referred to as 'mutual research' (Armitage, 2007: 8), hybrid research, combined research or integrated research (Creswell & Plano Clark, 2007a: 6) or multi-method research (Burke Johnson & Onwuegbuzie, 2004: 21) but is commonly referred to as 'mixed research' (Burke Johnson & Onwuegbuzie, 2004: 14). According to Brannen (2005: 4), mixed-methods research means *adopting a research strategy employing more than one type of research method*. These methods may be a mix of qualitative and quantitative methods, a mix of only qualitative methods or a mix of only quantitative methods. Mixed-method research in its most elemental form is seen to involve aspects of both qualitative and quantitative research (Fraenkel & Wallen, Bazeley, 2002: 2; Bergman, 2008: 3; Brannen, 2005: 4; Byrne & Humble, 2006: 1; 2008: 557; Niglas, 2000: 1; Onwuegbuzie & Leech, 2005: 376; Tashakkori & Teddlie, 2008). For the purposes of this study, the following definition will be employed:

Mixed methods research is research that combines both quantitative and qualitative methods in a single study.

Fraenkel and Wallen (2008: 558) and Creswell and Plano Clark (2007a: 10) identify three reasons for bringing a mixed-method design into play. The first is to help to clarify and explain relationships between variables, the second is to explore relationships between variables in depth, and the third is that a mixed-method design can help to confirm or cross-validate relationships discovered between the variables under investigation (Fraenkel & Wallen, 2008: 558). This stance is corroborated by Onwuegbuzie and Leech (2005: 384) when they note that quantitative research is often driven by the researcher's concerns over certain issues, while qualitative research strives to capture the participant's voice. The mixed-method approach, from a pragmatistic viewpoint, allows the researcher to give equal emphasis to both (Burke Johnson & Onwuegbuzie, 2004: 21). For the purposes of this study, the researcher has opted to use a mixed-method approach that emphasises quantitative data and uses qualitative data to flesh out the ideas exposed in the quantitative phase.

5.2.2 The Pragmatist Research Paradigm

Although philosophical assumptions (or paradigms) remain 'unseen' in research work, they are important as they guide a researcher's inquiry by dictating how a researcher approaches the research at hand (Creswell, 1998: 74). These philosophical assumptions include the researcher's ontological beliefs and the specific beliefs about the nature of reality. The nature of reality is explored through a researcher's answer(s) to problems such as: 'What is the nature of the world?' Creswell (1998:76) notes that it is key to remember that this reality

includes social phenomena (Creswell, 1998: 76; Leblanc, 1995: 3). In this study, the social phenomenon under investigation is the use of Short Messaging Service (SMS) language (§2.7), with the unique variations in the orthographic function of this writing system (§2.71 and §2.72) and the self-regulatory strategies involved in the writing of this form (§4.4.1). The research problem, together with the accompanying research questions, is dualistic as it deals with: SMS language and the use of self-regulation in SMS.

This researcher views the research problem (§1.1) through a *pragmatistic lens*, employing both quantitative and qualitative research components within a mixed-method design (Creswell & Plano Clark, 2007a: 82; Tashakkori & Teddlie, 2003: 596).

Pragmatism in its original form can be defined as a theory of meaning or knowledge, which holds that the truth-value of an idea is to be found in its practical application in everyday life (Queiroz & Merrell, 2006: 37). Pragmatism rejects the idea of universal truths, and the overriding issue for pragmatists is whether or not something, be it philosophical assumptions, methodology or information, is useful or not. *Useful* can be defined in the sense that the something in question is instrumental in producing desired or anticipated results (Goles & Hirschheim, 2000: 261). Pragmatists infuse ‘useful’ with value, but the value is dependent on the researcher’s beliefs and interpretation of the relevance and importance ‘of a set of ideas’ as defined by their purposes and those shared by their community.

Pragmatists link the choice of approach directly to the purpose of and the nature of the research questions posed. Research is often multi-purpose and a ‘what works’ tactic will allow the researcher to address questions that do not sit comfortably within a wholly quantitative or qualitative approach (Armitage, 2007: 3). In a nutshell, Pragmatism recognizes the importance of theory as a means of explaining and predicting phenomena, while subjecting it to the test of practice and time in order to determine its usefulness or value (Goles & Hirschheim, 2000: 262). This ‘primacy of practice’ is one of the central tenets of Pragmatism.

This study is set in a very particular context (a high school), while dealing with a very particular topic, the Short Messaging Service habits of teenagers (the learners from the particular high school) and the aspects of self-regulation which govern the writing of colloquial SMSes. The social nature and arena of SMS links with the paradigm of Pragmatism as Pragmatism stresses the primacy of the social act and the relevance of everyday experiences.

Connected to what the researcher believes is real, are epistemological beliefs, concerning what it is possible for one to know (Creswell, 1998: 76; Leblanc, 1995: 3). Onwuegbuzie and

Leech (2005: 376) make the point that there is a misguided view that epistemology should guide the choice of information compilation and data analysis regimes. They state that researchers should employ a pragmatic approach to research. Pragmatists propose that researchers should be allowed to use any method that works for them (Fraenkel & Wallen, 2008: 559; Goles & Hirschheim, 2000: 260; Rocco, Bliss, Gallagher, & Perez-Prado, 2003: 21), and not be bound by the qualitative-quantitative debate (Brannen, 2005: 6).

Onwuegbuzie (2009:14) rejects the incompatibility thesis that states that qualitative and quantitative researches are fully incompatible and cannot be combined in any useful way. In pragmatist research, research paradigms can remain separate but they can also be mixed or combined into another research paradigm. Bergman (2008b:18) notes, though, that researchers should not be forced into taking a vague pragmatistic stance in order to justify their choice of mixed method research. Rather, researchers' choices should be governed by a focused reasoning which delineates the research processes. As the framing of research questions is underpinned by both philosophical and pragmatic issues (Brannen, 2005: 8), this researcher has set out to employ a mixed-method research for two reasons:

- Pragmatism states that the value of an idea is to be found in its practical application in everyday life and recognizes the importance of theory as a means of explaining and predicting phenomena, while subjecting it to the test of practice and time.
- Pragmatism advocates the use of a mixed-method research design if the research aims deem it necessary.

5.2.3 Mixed-method design matrix

Mixed-method designs can either occur concurrently or sequentially. When the designs occur concurrently, the results stemming from one data analysis phase do not inform the results stemming from the other phase. Cross-over analysis occurs when analysis types associated with one tradition will be used to analyze data associated with a different tradition. When Mixed-method designs occur sequentially, one analysis phase follows and informs the next (Byrne & Humble, 2006: 4; Creswell, Plano Clark, & Garrett, 2008b: 68).

For the sake of elucidation the following notations (see Table 5.1) are used to describe mixed-method research (Byrne & Humble, 2006: 4). The use of the abbreviations *QUAN*, *quan*, *QUAL* or *qual* indicate whether the method is quantitative or qualitative, while the use of upper case letters shows the priority given to a particular method. The plus arrow (+) is used to show that data are collected at the same time while the arrow (→) is used to show that data are first collected for one project and once this project is complete, data are collected for a second project. An example of this is *QUAL + quan*. This indicates a

qualitatively driven project, involving qualitative and quantitative data collected at the same time. Another example could be *QUAN* → *quan* indicating a quantitatively-driven project, in which a quantitative project is conducted first followed by a second quantitative project, which is designed to expand on findings from the first project (Byrne & Humble, 2006: 4).

Burke Johnson and Onwuegbuzie (2004: 21) suggest a mixed-method design matrix (see Table 5.1) based on time order decisions, whether research will be run concurrently or sequentially, and paradigm emphasis decisions, based on the dominance of either the quantitative or qualitative phases.

Table 5.1 Mixed-method design matrix with mixed-method designs shown in four cells (Burke Johnson & Onwuegbuzie, 2004: 22)

	CONCURRENT	SEQUENTIAL
Equal status	QUAL + QUAN	QUAL → QUAN QUAN → QUAL
Dominant status	QUAL + quan QUAN + qual	QUAL → qual qual → QUAN QUAN → qual Quan → QUAL

Four basic types of mixed-method designs have been identified by Fraenkel and Wallen (2008: 560), Creswell *et al.* (2008b) and Byrne (2006: 4), with these designs rooted in the purposes of a specific mixed-method regime. The four basic designs are: the exploratory design, the explanatory design, the embedded design and the triangulation design.

- **The exploratory design**

The exploratory design uses qualitative methods to discover the important variables underlying a phenomenon of interest and to inform a second, quantitative method. The qualitative study has the higher priority, and gives direction to the quantitative study, which is used to validate the results found in the qualitative phase (Byrne & Humble, 2006: 4; Creswell *et al.*, 2008b: 69; Fraenkel & Wallen, 2008: 560).

- **The explanatory design**

The explanatory design is used when researchers begin with quantitative methods and then follow up with qualitative methods, in order to explain the initial quantitative results (Byrne & Humble, 2006: 4; Creswell *et al.*, 2008b: 69).

- **The embedded design**

The embedded design is usually sequential in nature and involves collecting qualitative data before an intervention begins or after it is complete. This qualitative data then informs the choice of participants or can help test treatments before the actual experiment (Creswell *et al.*, 2008b: 69).

- **The triangulation design**

The triangulation design is the most popular design used by proponents of mixed-method research, but it is by no means the easiest (Creswell *et al.*, 2008b: 68). This design is a one-phase design where both qualitative and quantitative methods are given equal priority. The results are then merged into a single understanding of the research problem being investigated (Fraenkel & Wallen, Creswell *et al.*, 2008b: 68; 2008: 561).

5.2.4 The sequential explanatory design

This study employs a sequential explanatory design (§5.2.3), which is when the researcher begins with the quantitative methods and then follow up with qualitative methods in order to explain the initial analyses. The sequential explanatory design is also known as a deductive theoretical drive (Byrne & Humble, 2006: 4), where the dominant quantitative analysis phase is conducted first and then informs the subsequent qualitative analysis phase: QUAN → qual (Brannen, 2005: 14) (see Figure 5.1).



Figure 5.1 The sequential explanatory mixed-method design (Brannen, 2005: 14)

The purpose of the sequential explanatory mixed-method research design within the context of this research is to:

- seek elaboration, enhancement, illustration and clarification of results from the quantitative design with results from the qualitative design (also called complementarity). In essence, the two research designs are juxtapose to generate complementary insights that create a bigger picture (Brannen, 2005: 12; Niglas, 2000: 4; Sydenstricker-Neto, 1997; Tashakkori & Teddlie, 2008: 103),
- develop the line of inquiry from the quantitative design through to the qualitative design in order to plot the development of the strand of the research as inferences emerge from the quantitative research design. The purpose of development is particularly relevant in sequential mixed approaches, where one phase follows the next (Sydenstricker-Neto, 1997; Tashakkori & Teddlie, 2008: 103), and
- to ensure that a complete picture of the phenomenon is obtained (Tashakkori & Teddlie, 2008: 103).

Using the purposes identified for mixed-method research and the sequential explanatory design, together with the research questions, it has been possible to develop a mixed-method research model as a conceptualisation of the design which is applicable to this study (see Figure 5.2).

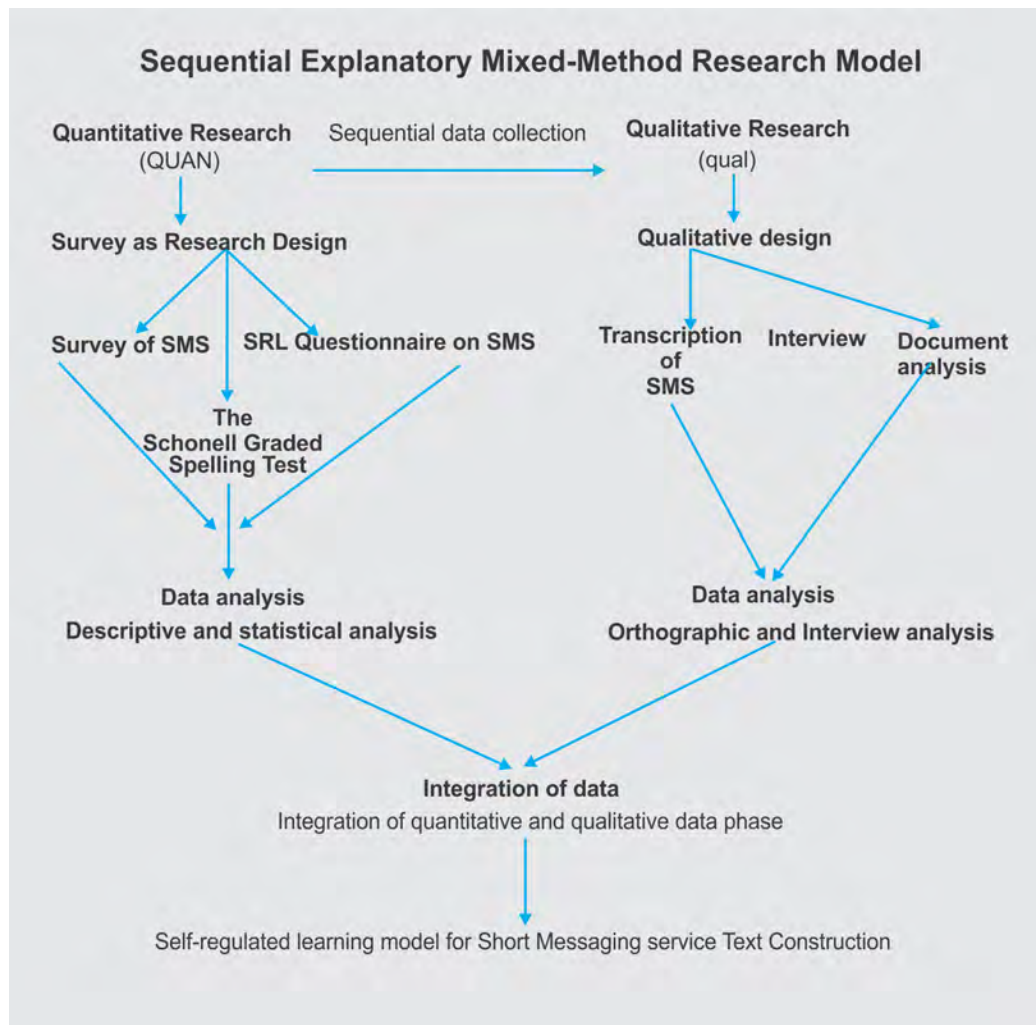


Figure 5.2 Sequential Explanatory Mixed-method Research Model

The two components of the dominant quantitative research (QUAN) and the lesser dominant qualitative research (qual) as part of the sequential explanatory mixed-method research design are discussed in the following sections.

5.3 Quantitative Research

The quantitative section of this research study uses a survey which is three-fold in design. It comprises a General Survey of SMS (see Appendix 1); a self-regulated learning in SMS questionnaire (see Appendix 2); and The Schonell Graded Spelling Test (see Appendix 4). The purpose of this section is to discuss the instruments, the statistical analysis and the description of the descriptive statistics.

5.3.1 The survey as research method

A once off cross-sectional survey design was used in this study. Cross-sectional studies allow the researcher to measure the nature of the development (i.e. the nature of SMS and self-regulation in SMS) in a sample of learners drawn from a representative group at a particular point in time, with the representative group representing a 'snapshot' of the study population (Cohen *et al.* 2007: 213; Fraenkel & Wallen, 2008: 391).

5.3.2 Participants

Using non-probability sampling (i.e. purposive, convenience and interlaced sampling), all the learners from Grade 8 to Grade 12 (n=250) of a single high school in the North West Province, were selected to participate in this study. Convenience sampling was used to select the specific school in the North-West Province, as this school was accessible and provided an appropriate example for the delineated requirements of the research questions:

- 1) learners having English as a Home Language as the medium of instruction
- 2) schools teaching English as a Home Language to all the learners, and
- 3) all the learners in the school owning cellular telephones.

Using purposive sampling, all the learners from Grade 8 to Grade 12 were selected. The reason for using purposive sampling was:

- because the researcher did not want to make use of a sample to generalise the findings of this study to a particular population, but rather to determine the extent of the use of SMS language and Self-regulation strategies in SMS in this particular group of participants, and
- the researcher was specifically looking to study a case (in this study a school served as a case) that involved English-speaking teenagers who owned cellular telephones and used SMS language to communicate.

5.3.3 Instrumentation

Three instruments were selected to collect quantitative data in this study. In order to collect data regarding SMS usage the researcher developed a biographical survey of SMS usage in learners (§5.3.3.1). The researcher also developed a Self-Regulated Learning in SMS Questionnaire (§5.3.3.2) and employed the Schonell Graded Spelling Test (§5.3.3.3) in order to test the participant's spelling ages.

5.3.3.1 The General Survey of SMS usage in Learners

A general survey of SMS questionnaire (see Appendix 1) was developed on the basis of the review of literature (see chapter 2) and the research questions (§1.3) in order to collect data from learners. The survey items were developed to include responses to biographical information, experiences related to using cellular telephones, SMS language, recipients of SMS, the nature of SMS and the functional categories of SMS. The final section of this survey deals with general open-ended questions regarding SMS. The questions were grouped in related sections to allow for a logical and thematic sequence in order to facilitate the completion of the survey.

The survey questionnaire, designed to be completed anonymously, was completed by the learners, in a controlled setting, in an auditorium. This was to ensure an optimum return rate.

5.3.3.1.1 Outline of the General Survey of SMS language

The General Survey of SMS language is divided into the following sections:

- **Section A: General information**

Statements in this section (1-8) of the survey were aimed at gathering information regarding possession of cellular telephones and the biographical variables of the participants, such as the date of birth, gender and home language. Statements in this section also aimed to determine if learners possess a cellular telephone or not.

- **Section B: Statements regarding the use of cellular telephones**

The statements in this section (9-12) aimed to determine the primary usage of cellular telephones amongst learners (e.g. sending SMSes or making telephone calls).

- **Section C: Statements regarding SMS language**

Statements in this section of the survey deal specifically with the participants' use of SMS language (§2.7). Statements were specifically aimed at determining whether participants' use non-standard spelling (statements 13-14) and identifying unusual aspects of SMS language (statements 16-22).

- **Section D: Statements regarding recipients of SMS**

Statements in this section were aimed at determining to whom the participants were sending SMSes (§2.6.3). In an attempt to determine whether participants sent SMS

text messages to their parents or their peers, questions were developed which required participants to indicate who it is that they SMS most. Statements 23-27 relate to SMSes sent to family members (parents, siblings etc) while statements 28-30 related to SMSes sent to non-family members (friends or acquaintances).

- **Section E: Statements regarding the nature of SMS**

The statements in this section (31-34) all aimed to determine which tone (serious, humorous, depressing or romantic) was prevalent in the SMSes sent by the participants in this study.

- **Section F: Statements regarding the functional categories of SMS**

Statements regarding the functional categories of SMS (§2.6.3) were aimed at determining the type of SMSes that were sent by the participants in this study. In essence, these statements aimed to determine 'why' the participants use the SMS function on their cellular telephones. Statements in this category include: 35-38 were statements aimed at determining how learners organise their lives using SMS, statements 39-40 indicated how participants maintained friendships using SMS, statements 41-43 dealt with gossip and SMSes of a romantic nature while statements 44-45 determined whether or not learners sent chain letters via SMS.

5.3.3.1.2 *Scale used in the General Survey of SMS language*

A Likert scale (i.e. as a rating scale) was adopted as a recording technique for the responses in this survey to capture the degree to which the participants agreed with a particular statement. A four point rating scale was used to determine the extent to which a participant *strongly agreed, agreed, disagreed or strongly disagreed* with the statement presented. The scale was constructed as depicted in Table 5.2.

Table 5.2: Likert scale for survey of SMS language

KEY			
Strongly agree	Agree	Disagree	Strongly disagree
1	2	3	4

5.3.3.1.3 Validity of the General survey of SMS

The validity of a measuring instrument indicates whether or not that instrument measures what it is supposed to measure (Ary, Jacobs, & Razavieh, 1990: 258; Bush, 2002: 65; Gall, Borg, & Gall, 1996: 249). There are various types of validity: content validity, face validity and construct validity.

The content validity of the General Survey of SMS was ensured by determining that the content and format of the statements were based on the relevant literature review (see Chapter 2) and that the statements reflected the content and could be assessed (Delpont, 2005:161). The face validity of a questionnaire refers to the subjective judgement of the measuring instrument and whether or not the measuring instrument measures what it intends to measure. The General Survey of SMS is based in specific sub-sections of: cellular telephone usage, SMS language, recipients of SMS, the nature of SMS and the functional categories of SMS. These sub-sections were based on the review of literature (see Chapter 2) and aimed to measure SMS usage and SMS language amongst a group of teenagers in a High School in the North West Province. The construct validity of the General Survey for SMS refers to the extent to which the survey was able to measure the observable effects of the constructs or traits that were identified, according to Ary *et al.* (1990: 262).

In order to validate the constructs covered by a test, the data should be subjected to a factor analysis. The construct validity of the General Survey of SMS is discussed under the following headings: Cellular telephone usage, SMS language, recipients of SMS, the nature of SMS and the functional categories of SMS.

- **Cell phone usage**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the General Survey of SMS was administered in order to determine the pattern of the correlations of the items. According to Field (2005: 640) a value close to 1 indicates that the correlation patterns are compact. This test yielded a result of 0.646. Field (2005: 668) states that any measure of sampling adequacy that lies between 0.5-0.7 is average. Anything that lies ≥ 0.7 is indicative of good sampling adequacy.

The Bartlett's Test of Sphericity for the General Survey of SMS was conducted in order to determine that enough correlation exists between items. This test yielded p values < 0.001 , indicating a sufficient correlation structure.

According to Field (2005: 629) when a researcher does not want to generalise beyond the findings of a study and the conclusions are limited to the specific study population, then data may be extracted using the Principle Component Method or Principle Axis Method of determining the factors in a research instrument. The General Survey of SMS was factor analysed using the Principal Axis factoring. One factor was extracted from the questionnaire explaining 43.2% of the variance, using Kaiser's criterion.

Using the Principal Component Analysis, the communalities for the items related to cell phone usage in the General Survey of SMS lie between 0.093 and 0.333. According to Hair (1998) everything that lies > 0.3 indicates that an acceptable variance has been retained. Although some of the communalities were low in the compilation of the factor scores, the means of all the item loadings on one factor were used so that each item had equal weight.

Table 5.3. Construct validity of the cellular telephone usage sub-scale

		FACTOR LOADING	
	Item	1	Communality
9	I use my cell phone primarily to send SMSes	0.577	0.333
10	I use my cell phone primarily to make telephone calls	0.545	0.290
11	I use my cell phone primarily to MMS	0.539	0.297
12	I use my cellular telephone to MXit or visit chat rooms	0.305	0.093

The factor analysis identified one construct that composed cellular telephone usage. This Factor focuses specifically on what learners use their cellular telephones for. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **SMS Language**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the General Survey of SMS yielded a result of .796 Field (2005: 668) states that any measure of sampling adequacy that lies between 0.7 and 0.8 is good. The Bartlett's Test of Sphericity for the General Survey of SMS yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the questionnaire explaining 34% of the variance, using Kaiser's criterion. The

communalities for the items related to SMS language in the General Survey of SMS lie between 0.130 and 0.674, using Principal Component Analysis.

Table 5.4. Construct validity of the SMS language sub-scale

	Item	FACTOR LOADING		Communality
		1	2	
13	I use an abbreviated form of writing when I SMS (e.g. c u & gr8)		0.736	0.622
14	I use acronyms or initialisms when I write an SMS (e.g. LOL, OMG or JK (just kidding))		0.544	0.541
15	I use non-standard spelling when I write an SMS (e.g. msg, nxt, every1)		0.725	0.674
16	My SMS's often look like the spoken word (e.g. this is sooooo wrong, Dat is so sad, sigh)	0.342		0.185
17	I use capitalization in my SMS messages (e.g. this is VERY important)	0.699		0.471
18	I use punctuation correctly in my SMS messages (e.g. full stops (.) or commas (,))		0.321	0.130
19	I use punctuation in my SMS messages, for effect or emphasis (e.g. maybe..... or No!!!!!!!)	0.611		0.406
20	I use unusual combinations of punctuation in my SMS messages (e.g. \$%@\$!)	0.481		0.273
21	I use smileys or emoticons in my SMS messages (e.g. :-))	0.519		0.272
22	I use personal style when composing an SMS	0.603		0.351

The factor analysis identified two related constructs that compose SMS language. Factor 1 focuses specifically on the non-standard spelling aspects of SMS language. Factor 2 relates to the unusual aspects of SMS language. This researcher uses two factors when discussing SMS language in this study. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **Recipients of SMS**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the General Survey of SMS yielded a result of 0.758 Field (2005: 668) states that any measure of sampling adequacy that lies between 0.7 and 0.8 is good. The Bartlett's Test of Sphericity for the General Survey of SMS yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the questionnaire explaining 34% of the variance, using Kaiser's criterion. The communalities for the items related to the recipients of SMS in the General Survey of SMS lie between 0.102 and 0.641, using Principal Axis Factoring.

Table 5.5. Construct validity of the recipients of SMS sub-scale

	Item	FACTOR LOADING		Communality
		1	2	
23	I send SMSes primarily to my parents	0.482		0.230
24	I send SMSes to my brothers and/or sisters	0.490		0.377
25	I send SMSes to my cousin/s	0.486		0.358
26	I send SMSes to my aunt/s or/and uncle/s	0.811		0.641
27	I send SMSes to my grandparent/s	0.586		0.306
28	I send SMSes to acquaintances (people that you know but who are not really friends)		0.268	0.102
29	I send SMSes to my friend/s		0.592	0.396
30	I send SMSes to my girlfriend/boyfriend		0.694	0.428

The factor analysis identified two related constructs that compose recipients of SMS (see Table 5.5). Factor 1 focuses specifically on the family members, while Factor 2 (relates to non-family members. This researcher used two factors when discussing the recipients of SMSes in this study as it is inferred that learners are able to adapt the register of their SMS language depending on whom they are texting (Tagg, 2009: 351). The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **The nature of SMS**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the General Survey of SMS yielded a result of 0.531. The Bartlett's Test of Sphericity for the General Survey of SMS yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were

extracted from the questionnaire explaining 36% of the variance, using Kaiser's criterion. The communalities for the items related to the recipients of SMS in the General Survey of SMS lie between 0.102 and 0.525.

Table 5.6. Construct validity of the nature of SMS sub-scale

	Item	FACTOR LOADING		Communality
		1	2	
31	The SMSes that I send are serious	.339		.167
32	The SMSes that I send are humorous		.676	.440
33	The SMSes that I send are depressing	.759		.525
34	The SMSes that I send are romantic	.202		.102

The factor analysis identified two related constructs that compose the nature of SMS (see Table 5.6). Factor 1 focuses specifically on the tone of the SMS, while Factor 2 (consisting of only one item, 32) relates to humorous SMSes. This researcher chooses to disregard this subsection of the survey for further analysis as the communalities show that there is very little criterion of construct validity, together with a low Cronbach alpha ($\alpha=0.39$) for reliability.

- **Functional categories of SMS**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the General Survey of SMS yielded a result of 0.694. The Bartlett's Test of Sphericity for the General Survey of SMS yielded p values < 0.001 indicating a sufficient correlation structure. Four factors were extracted from the questionnaire explaining 26% of the variance, using Kaiser's criterion. The communalities for the items related to the recipients of SMS in the General Survey of SMS lie between 0.157 and 0.604.

Table 5.7. Construct validity of the functional categories of SMS sub-scale

	Item	FACTOR LOADING				Communality
		1	2	3	4	
35	The SMSes that I send are in order to make practical arrangements.			-0.388		0.157
36	The SMSes that I send are to ask for personal favours			0.641		0.407
37	The SMSes that I send are to exchange practical details			0.646		0.484
38	The SMSes that I send are to organise my social life			0.556		0.471
39	The SMSes that I send are simple, friendly greetings		0.682			0.500
40	The SMSes that I send are to maintain friendships		0.746			0.604
41	The SMSes that I send are gossip	0.318				0.235
42	The SMSes that I send are romantic messages	0.444				0.352
43	The SMSes that I send are sexual messages	0.761				0.558
44	The SMSes that I send are chain letters				0.647	0.437
45	The SMSes that I send are religious messages				0.367	0.237

The factor analysis identified four related constructs that compose the functional categories of SMS. Factor 1 deals specifically with SMS messages of a romantic nature, while Factor 2 relates to SMSes aimed at maintaining friendships. Factor 3 deals with SMSes aimed at organising the texter's life while Factor 4 specifically refers to chain messages. This researcher will use four factors when discussing the functional categories in this study as the function of the SMS may determine the style (i.e. informal or formal) of writing employed in the SMS text messages sent by the participants in this particular study. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

5.3.3.1.4 Reliability of the General Survey of SMS

Reliability refers to the consistency with which a measuring instrument yields a certain result when the entity being measured hasn't changed (Ary *et al.*, 1990: 271; Fraenkel & Wallen, 2008: 154; Gall *et al.*, 1996: 254; Leedy & Ormrod, 2005: 29). According to Macmillian and Schumacher (1989: 246), there are different types of reliability: stability, equivalence, and internal consistency.

The General Survey of SMS did not measure a stable characteristic over time (stability), nor did it compare two measures of the same trait (equivalence). The split-half Kuder-Richardson procedure was not used to determine the internal consistency of the reliability in the General Survey of SMS as the items were not scored right or wrong. Rather the survey measured a single trait in one test and so the internal consistencies of the items in the General Survey of SMS were correlated with each other.

One way of checking the internal consistency of an instrument is to calculate the Cronbach Alpha (or the alpha coefficient). The Cronbach alpha coefficient is widely used as a reliable procedure to indicate how well various items are positively correlated to one another. The Cronbach alpha provides a reliability estimate for items that are not scored dichotomously but for a measure that is composed of items with values other than 0 or 1, thus for items with multiple scores. Cronbach's coefficient alpha (α) estimates the reliability of this type of scale by determining the internal consistency of the test or the average correlation of items within the test (Anastasi, 1988; Clark & Watson, 1995: 311; Fraenkel & Wallen, 2008: 158; Nunnally, 1978). A statistical method was accordingly used to calculate the Cronbach alpha coefficient to assess the internal consistency of the various items of the General Survey of SMS usage in Learners (SAS Manual, 2005b: 295). The Cronbach alpha coefficient was calculated for each grouping of statement items (subsections B-F) to illustrate the level of internal consistency for each subsection and to indicate the extent to which these items were measuring the same construct.

A Cronbach's alpha coefficient of ≥ 0.7 indicates that the applicable scale items are highly consistent, while a coefficient of ≥ 0.6 is substantial (Nunnally, 1978: 295; Thietart, 2007: 203). See Table 5.8 to 5.13 for the Cronbach alpha coefficients for the different sub-sections of the survey.

- **Reliability of the use of cellular telephones**

Table 5.8 The use of cellular telephones

THE USE OF CELLULAR TELEPHONES ($\alpha = 0.56$)		
Item	Item statement	(α)
9	I use my cell phone primarily to send SMSes	0.43
10	I use my cell phone primarily to make telephone calls	0.48
11	I use my cell phone primarily to MMS	0.45
12	I use my cellular telephone to MXit or visit chat rooms	0.57

The alpha coefficients for the subsections of Section B: the use of cellular telephones (statement item 9-12) range between 0.42 and 0.57 with a total alpha coefficient at 0.55. As the alpha coefficient for this section is <0.6 it was retained for further analysis.

- **Reliability of SMS language**

Table 5.9 SMS language

SMS LANGUAGE ($\alpha = 0.73$)		
Items	Item statement	(α)
13	I use an abbreviated form of writing when I SMS (e.g. c u & gr8)	0.72
14	I use acronyms or initialisms when I write an SMS (e.g. LOL, OMG or JK (just kidding))	0.71
15	I use non-standard spelling when I write an SMS (e.g. msg, nxt, every1)	0.72
16	My SMS's often look like the spoken word (e.g. this is sooooo wrong, Dat is so sad, sigh)	0.71
17	I use capitalization in my SMS messages (e.g. this is VERY important)	0.65
18r	I use punctuation correctly in my SMS messages (e.g. full stops (.) or commas (,))	0.81
19	I use punctuation in my SMS messages, for effect or emphasis (e.g. maybe..... or No!!!!!!!)	0.67
20	I use unusual combinations of punctuation in my SMS messages (e.g. \$%@\$!)	0.69
21	I use smileys or emoticons in my SMS messages (e.g. :-])	0.68
22	I use personal style when composing an SMS	0.68

All the items in the use of SMS language (statement items 13-22) account for high alpha coefficients (≥ 0.7) ranging from 0.7 to 0.79 and are indicative of strong internal consistency. This section or sub-scale was thus included for further investigation.

- **Reliability of the recipients of SMS**

Table 5.10 Recipients of SMS

RECIPIENTS OF SMS ($\alpha= 0.71$)		
Items	Item statement	(α)
23	I send SMSes primarily to my parents	0.72
24	I send SMSes to my brothers and/or sisters	0.68
25	I send SMSes to my cousin/s	0.68
26	I send SMSes to my aunt/s or/and uncle/s	0.62
27	I send SMSes to my grandparent/s	0.70
28	I send SMSes to acquaintances (people that you know but who are not really friends)	0.74
29	I send SMSes to my friend/s	0.71
30	I send SMSes to my girlfriend/boyfriend	0.73

All the items in Section D: the recipients of SMS (statement items 23-30) account for substantial alpha coefficients (≥ 0.6) ranging from 0.62 and 0.74, and are indicative of substantial internal consistency. These sections are thus included for further investigation.

- **Reliability of the nature of SMS**

Table 5.11 The nature of SMS

NATURE OF SMS ($\alpha=0.39$)		
ITEM	ITEM STATEMENTS	(α)
31	The SMSes that I send are serious	0.28
32	The SMSes that I send are humorous	0.37
33	The SMSes that I send are depressing	0.31
34	The SMSes that I send are romantic	0.32

The alpha coefficients for the subsections of Section E: the nature of SMS (statement items 31-34) range between 0.28 and 0.37 with a total alpha coefficient at 0.39. As the alpha coefficient for this section is <0.6 this section was not included for further analysis.

- **Reliability of the functional categories of SMS**

Table 5.12 Functional categories of SMS

FUNCTIONAL CATEGORIES OF SMS ($\alpha=0.71$)		
Items	Item statement	(α)
35	The SMSes that I send are in order to make practical arrangements.	0.71
36	The SMSes that I send are to ask for personal favours	0.69
37	The SMSes that I send are to exchange practical details	0.68
38	The SMSes that I send are to organise my social life	0.67
39	The SMSes that I send are simple, friendly greetings	0.69
40	The SMSes that I send are to maintain friendships	0.68
41	The SMSes that I send are gossip	0.69
42	The SMSes that I send are romantic messages	0.68
43	The SMSes that I send are sexual messages	0.72
44	The SMSes that I send are chain letters	0.71
45	The SMSes that I send are religious messages	0.70

Cronbach alpha coefficients for Section F: the functional use of SMS (statement items 35-45) varied from 0.67 to 0.72 and account for substantial to high alpha coefficients (≥ 0.6 and ≥ 0.7). This is indicative of strong internal consistency. These sections are thus included for analysis and interpretation.

For the purposes of this study, the following sections (see Table 5.13) were retained for analysis and interpretation because of their alpha reliability. Section E (the nature of SMS) was therefore rejected for further analysis and investigation because of the low alpha reliability coefficient.

Table 5.13 Sections retained for investigation

SECTIONS RETAINED FOR INVESTIGATION	
Section	(α)
B: the use of cellular telephones	0.56
C: SMS Language	0.74
D: Recipients	0.71
F: Functional categories	0.71

5.3.3.2 Self-Regulated Learning in SMS Questionnaire

A self-regulated learning in SMS Questionnaire, based on Zimmerman's (2000) model, was developed to obtain data on the learners' level of self-regulation in the context-specific area of SMS texting (see Appendix 2 & 3). In order to test a large group of participants, a paper and pencil questionnaire was developed. As this researcher was interested in certain specific self-regulatory components, the Self-regulated Learning in SMS Questionnaire was focussed on learners' goal setting, strategic planning, self-evaluation and self-reaction skills.

With reference to reliability, the internal consistency for the questionnaire was determined by calculating the Cronbach alpha reliability coefficient. With reference to validity, the questionnaire satisfied the criteria of face and content validity.

5.3.3.2.1 *Outline of the Self-Regulated Learning in SMS Questionnaire*

The statements in this questionnaire were divided into the sub-categories or sub-scales of goal setting, strategic planning, self-recording, self-evaluation, and self-reaction.

- **Goal setting**

Statements in this category were aimed at determining the specific SMS goal setting skills of the participants in this study (see Table 5.16 for the items related to this sub-category of self-regulation).

- **Strategic planning**

The statements in this category aim to deduce whether or not the participants implement strategic planning in their SMS endeavours (see Table 5.17).

- **Self-recording**

Statements in this category aim to understand which self-recording skills the participants in this study employ when composing an SMS (see Table 5.18).

- **Self-evaluation**

This category consists of statements aimed at establishing whether or not the participants are able to employ the self-regulatory skill of self-evaluation when engaging in sending an SMS (see Table 5.19).

- **Self-reaction**

The last category of self-reflection statements, those of self-evaluation, aim to determine which techniques the participants use in order to evaluate their SMS progress (see Table 5.20).

5.3.3.2.2 Scale used with the Self-Regulated Learning in SMS Questionnaire

In a study aimed at measuring motivational and self-regulated learning components of classroom academic performance, Pintrich and De Groot (1990: 34) developed a self-report scale that used a 7-point Likert scale to measure the participants motivational behaviours in the Science or English class. Using factor analysis as a guide, some of the items in their questionnaire were excluded from their scales because of a lack of correlation or stable factor structure. This researcher developed a similar quantitative questionnaire, aimed at measuring the self-regulatory skills evident in SMS.

A Likert scale (i.e. as a rating scale) was used as a recording technique for the responses in this questionnaire, to capture the degree to which the participant's agreed with a particular statement. A five-point rating scale was used to determine the extent, to which participants state that the statement is *not like them*, *not very much like them*, *fairly much like them*, *much like them* and *very much like them*. The scale was constructed as depicted in Table 5.14.

Table 5.14 Likert scale for the Self-Regulated Learning in SMS Questionnaire

KEY				
1	2	3	4	5
Not at all like me	Not very much like me	Fairly much like me	Much like me	Very much like me

5.3.3.2.3 *Validity of the Self-Regulated Learning in SMS Questionnaire*

The validity of a measuring instrument indicates whether or not that instrument measures what it is supposed to measure (Ary *et al.*, 1990: 258; Bush, 2002: 65; Gall *et al.*, 1996: 249). There are various types of validity: content validity, face validity and construct validity.

The content validity of the Self-regulated Learning in SMS Questionnaire was ensured by determining that the content and format of the statements were based on the relevant literature review (see Chapter 3) and that the statements reflected the content and could be assessed (Delport, 2005:161). The face validity of a questionnaire refers to the subjective judgement of the measuring instrument and whether or not the measuring instrument measures what it intends to measure. The Self-regulated Learning in SMS Questionnaire is based in specific sub-sections of: goal setting, strategic planning, self-recording, self-evaluation and self-reaction. These sub-sections were based on the review of literature (see Chapter 3) and measured the self-regulatory skills of SMS amongst a group of teenagers in a High School in the North West Province.

The construct validity of the Self-regulated Learning in SMS Questionnaire refers to the extent to which the survey was able to measure the observable effects of the constructs or traits that were identified according to Ary *et al.*, (1990: 262). Further more, in order to test or validate the constructs covered by a test, the data was subjected to a factor analysis. The construct validity of the Self-regulated Learning in SMS Questionnaire is discussed under the following headings: goal setting, strategic planning, self-recording, self-evaluation and self-reaction.

- **Goal setting**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (§5.3.3.1.3) in the Self-Regulated Learning in Questionnaire yielded a result of 0.799. The Bartlett's Test of Sphericity (§5.3.3.1.3) for the Self-Regulated Learning in SMS Questionnaire yielded p values < 0.001 indicating a sufficient correlation structure. The Self-Regulated Learning in SMS Questionnaire was factor analysed using an oblique (oblimen) rotation. Two factors were extracted from the questionnaire explaining 55.4% of the variance, using Kaiser's criterion.

The communalities for the items related to goal setting in the Self-Regulated Learning in SMS Questionnaire lie between 0.413 and 0.731 using the Principal Component Analysis. According to Hair (1998) everything that lies > 0.3 indicates acceptable variance has been retained (§5.3.3.1.3).

Table 5.15. Construct validity of the Goal setting sub-scale

		FACTOR LOADING		Communality
		1	2	
33	Before writing an SMS, I set a goal which I plan to attain.	0.809		0.679
24	I prefer to set short term goals when writing an SMS.	0.743		0.541
12	I set specific goals for each SMS that I compose.	0.716		0.562
7	When I set a goal for writing an SMS, but I can't reach that goal, I break it up into more attainable goals and work at them one at a time, until I reach my goal.	0.713		0.484
2	I always respond to SMSes quickly.		0.873	0.731
16	I think about the content of my SMS for quite a while before composing the SMS.		0.512	0.413
18	I try to compose my all SMSes at a constant tempo.		0.475	0.470

The factor analysis identified two related constructs that composed goal setting (see Table 5.15). Both these constructs deal with goal setting. Factor 1 focuses specifically on goal setting activities such as setting specific goals or breaking goals into more attainable goals. Factor 2 relates to the goal of effective time management when texting. As this researcher is satisfied that both the factors relate to goal setting, only one construct **Goal Setting** will be used for further analysis. The amount of variance explained and communalities indicate that this sub-scale satisfies the criterion of construct validity.

- **Strategic planning**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (§5.3.3.1.3) in the Self-Regulated Learning in SMS Questionnaire gives a result of 0.863. which satisfies Field's (2005: 668) measure of sampling adequacy. The Bartlett's Test of Sphericity (§5.3.3.1.3) for the Self-Regulated Learning in SMS Questionnaire yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the questionnaire explaining 56% of the variance, using Kaiser's criterion. The communalities for the factors related to strategic planning in self-regulation in SMS lie between 0.475 and 0.699 indicating that acceptable variance has been retained (Hair *et al.*, 1998: 331).

Table 5.16 Construct validity of Strategic planning sub-scale

		FACTOR LOADING		
	Item	1	2	Communalities
14	Before composing an SMS, I first work out a framework for what I want to say.		0.670	0.584
8	Before writing an SMS, I first make sure that I am clear about what I want to communicate.		0.857	0.659
22	When I prepare myself for writing an SMS, I make sure that I know precisely what I want to say.		0.811	0.699
20	When writing an SMS, I make sure that I know how to follow the recommended guidelines for SMSing as stated in the cell phone manufacturer's instruction manual.	0.680		0.501
23	Before I write a new SMS, I skim through old SMS's to see how they are organised.	0.621		0.506
27	Before writing an SMS, I speak to others who know more about how to write SMS's than I do.	0.779		0.537
10	When I write an SMS, I work out how much time it will take to complete the SMS.	0.707		0.475
35	When writing an SMS, I ask myself questions to focus my writing.	0.708		0.552
19	Before I begin writing an SMS, I think about all the things that I need to write a good SMS.	0.449		0.528

The factor analysis identified two related constructs that composed strategic planning (see Table 5.16). Both these constructs deal with strategic planning. Factor 1 relates to pre-writing planning activities such as working out a framework before writing an SMS and planning what the SMS plans to communicate. Factor 2 relates to the actions aimed at focussing attention on the SMS writing task such as asking questions during the writing process to help focus the writing, thinking about the requirements of a good SMS and following the guidelines in the cellular telephone manufacturer's booklet. As the researcher is satisfied that both factors relate to strategic planning, only one construct **Strategic Planning** will be used in further analysis. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **Self-recording**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (§5.3.3.1.3) in the Self-Regulated Learning in SMS Questionnaire indicates a result of 0.780. The Bartlett's Test of Sphericity (§5.3.3.1.3) for SMS yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the Self-Regulated Learning in SMS Questionnaire explaining 56% of the variance, using Kaiser's criterion. The communalities for the factors related to self-recording in self-regulation in SMS lie between 0.365 and 0.749.

Table 5.17 Construct validity of Self-recording sub-scale

	Item	FACTOR LOADING		Communalities
		1	2	
30	While writing an SMS, I keep track of the time that it takes me to compose a message.	0.771		0.575
29	When I write an SMS, I keep a record of concepts or words that I can't remember or don't understand.	0.760		0.620
4	When I write an SMS, I take note of the important facts that I am trying to communicate.	0.662		0.393
34	When reading other people's SMSes, I make a mental note of important trends or fashions in SMS writing.	0.546		0.365
36	I usually check my SMS writing to see I have attained all my objectives.	0.497		0.578
28	When writing an SMS, I stop once in a while and go over what I have written.		0.891	0.749
25	After composing an SMS, I check my SMS to make certain it is correct.		0.796	0.676

The factor analysis identified two related constructs that compose self-recording (see Table 5.17). Both these constructs relate to self-recording. Factor 1 deals specifically with keeping track of or making mental notes of important information such as taking note of important facts to be communicated, trends or fashions in writing and checking that objectives have been attained. Factor 2 relates to efforts to check the SMS after it has been written such as going over what has been written and checking the SMS to make certain it is correct. As the researcher is satisfied that both the identified factors relate to self-recording, only one construct **Self-recording** will be used in further analysis. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **Self-evaluation**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy in the Self-Regulated Learning in SMS Questionnaire a result of .799 is indicated (§5.3.3.1.3). The Bartlett's Test of Sphericity (§5.3.3.1.3) for the Self-Regulated Learning in SMS Questionnaire yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the Self-Regulated Learning in SMS Questionnaire explaining 56% of the variance, using Kaiser's criterion. The communalities for the factors related to self-evaluation in self-regulation in SMS lie between 0.283 and 0.640 (§5.3.3.1.3).

Table 5.18 Construct validity of the Self-evaluation sub-scale

	Item	FACTOR LOADING		Communalities
		1	2	
21	When writing an SMS, I ask myself questions regarding the content of the SMS, to check if the receiver will understand the message.	0.747		0.631
15	When I have written an SMS, I usually have a good idea of how well I will be understood, before the SMS has been read.	0.744		0.595
26	When composing an SMS, I try to make sure that the receiver can understand my SMS.	0.723		0.570
5	I check over my SMS to make sure that it makes sense.	0.657		0.497
17	I ask myself questions to make sure that I understand the meaning of the SMS that I have composed	0.631		0.640
11	When I write an SMS, I make sure that I know how to use a cell phone pad correctly.	0.466		0.283
1	After writing an SMS, I have a good idea of how people will respond to what I have written.	0.478		0.562
31	I often find that I have been reading an SMS, but I don't know what it is all about.		0.467	0.285

The factor analysis identified two constructs that composes self-evaluation (see Table 5.18). Factor 1 focuses specifically on statements that relate to self-evaluation such as asking questions relating to the content of the SMS to check that the SMS makes sense and ensuring that the SMS is written correctly. Self-evaluation distinguishes one dominant factor. A second factor is identified, but this is a lone factor that relates to the reading of an SMS rather than the writing of an SMS and as such, can be disregarded. As this researcher is

satisfied that this factor relates to **Self-evaluation**, only factor 1 will be retained for further analysis. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

- **Self-reaction**

The Kaiser-Meyer-Olkin Measure of Sampling Adequacy (§5.3.3.1.3) in the Self-Regulated Learning in SMS Questionnaire indicated a result of 0.598. The Bartlett's Test of Sphericity (§5.3.3.1.3) for SMS yielded p values < 0.001 indicating a sufficient correlation structure. Two factors were extracted from the Self-Regulated Learning in SMS Questionnaire explaining 56% of the variance, using Kaiser's criterion. The communalities for the factors related to goal self-reaction in self-regulation in SMS lie between 0.430 and 0.733 (§5.3.3.1.3).

Table 5.19 Construct validity of the Self-reaction sub-scale

	Item	FACTOR LOADING		Communalities
		1	2	
32	I try to change the way I write an SMS to fit the personal style of the person I am communicating with (e.g. parent, school friend or teacher).	0.862		0.733
9	When I realise that people may not understand what I have written in an SMS, I change the way that I write the SMS.	0.580		0.430
3	When I become confused about something I am reading in an SMS, I go back and try to figure it out.	0.564		0.435
6	When I realise that I have not set enough time to complete an SMS, I reschedule my time.		0.867	0.724
13	If I realise that I don't understand a message, I ask someone for help.		0.622	0.479

The factor analysis identified two related constructs that composed self-reaction (see Table 5.19). Both these constructs deal with self-reaction. Factor 1 focuses specifically on self-reaction activities such as changing the style of writing. Factor 2 deals with coming to a realisation and changing behaviour because of this realisation. As this researcher is satisfied that both factors relate to self-reaction, only one construct **Self-reaction** will be used for further analysis. The amount of variance explained and communalities also indicate that this sub-scale satisfies the criterion of construct validity.

5.3.3.2.4 Reliability of the Self-Regulated Learning in SMS Questionnaire

Reliability refers to 'the consistency with which a measuring yields a certain result when the entity being measured hasn't changed' (Ary *et al.*, 1990: 271; Fraenkel & Wallen, 2008: 154;

Gall *et al.*, 1996: 254; Leedy & Ormrod, 2005: 29). According to Macmillian and Schumacher (1989: 246) there are different types of reliability: stability, equivalence, and internal consistency (§5.3.3.1.4).

The Self-Regulated Learning in SMS Questionnaire does not measure a stable characteristic over time (stability), nor does it compare two measures of the same trait (equivalence). The split-half Kuder-Richardson procedure was not used to determine the internal consistency of the reliability in the Self-Regulated Learning in SMS Questionnaire as the items were not scored right or wrong. Rather the questionnaire measured a single trait in one test and so the internal consistencies of the items in the Self-regulated learning in SMS Questionnaire were correlated with each other.

The Cronbach alpha coefficient was calculated for each sub-scale to illustrate the level of internal consistency for each sub-section and to indicate to what extent these items were measuring the same construct. A Cronbach's alpha coefficient of ≥ 0.7 indicates that the applicable scale items are highly consistent, while a coefficient of ≥ 0.6 is substantial (Nunnally, 1978: 295) Table 5.20 indicates the reliability scores for the Self-Regulated Learning in SMS Questionnaire .

Table 5.20 Reliability of the Self-Regulated Learning in SMS Questionnaire

SELF-REGULATED LEARNING IN SMS QUESTIONNAIRE		
	Cronbach's Alpha (α)	Inter-item correlations
Goal setting	0.73	0.261
Strategic planning	0.82	0.341
Self-recording	0.76	0.310
Self-evaluation	0.74	0.265
Self-reaction	0.51	0.173

The alpha coefficients for the subsection of Goal setting, Strategic planning, Self-recording and Self-evaluation range from 0.73 to 0.82 (≥ 0.7) and are indicative of a strong internal consistency. These particular subsections were thus retained for further investigation. The subsection of Self-reaction indicates an alpha coefficient of 0.51 (< 0.6), which indicates that it is not of substantive value or does not have a strong internal consistency. This researcher opts to keep this subsection in a further analysis as it warrants further investigation as to why self-reaction does not seem to play an important part in the self-regulation of SMS.

5.3.3.3 The Schonell Graded Spelling Test

The Schonell Graded Spelling Test (see Appendix 4) is a diagnostic and assessment tool, consisting of 100 spelling words arranged in order of difficulty, with the easiest words being first on the list and the most difficult words being last on the list. The Schonell Test designed to measure the spelling age of a learner (Schonell, 1965; Schonell, 2003; Schonell & Goodacre, 1974; Schonell & Schonell, 1956; Sterling et al., 1992: 89). The Schonell test has been used by the Scottish Government in studies used to teach phonics, reading and spelling, is recommended as an assessment tool by THRASS (Teaching Handwriting, Reading and Spelling skills) (Davies, 2006). The Schonell graded spelling test has been used in studies aimed at diagnosing and treating dyslexia (Simpson, Everatt, & Cheney, 2001; Snowling, Hulme, Wells, & Goulondris, 1992; Thambirajah, 2010), studies designed to measure spelling deficits (Chew, 1999; Chew, 2004) and to test a group's spelling ages with standardised scores (Ballis, Irvine & Carew, 2006; Greenup, 1992; Moseley, 1980).

5.3.3.3.1 Rationale and purpose

SMS spelling (§2.7.1 and §2.7.2) is vastly different from that of conventional formal and as such is a variable that was investigated to determine the influence of this spelling on the informal writing skills of learners (Padamanabhan, 2003). The Schonell Graded Spelling Test was administered to the entire population, to determine the average spelling age of all the learners. These spelling ages were then correlated with the Self-Regulation in SMS Questionnaire to determine whether a relationship exists between spelling age and self-regulation skills in composing an SMS. A regression analysis was also performed to determine the influence of the spelling age on the learners' ability to write well in a formal academic setting.

5.3.3.3.2 The Schonell Graded Spelling Test Procedure

The following procedure is recommended by THRASS (Davies, 2006) and was used in the administration of the Schonell graded spelling test to the entire population:

- The entire group was tested at one time. The learners were seated sufficiently far apart in order to prevent them from being able to copy from each other.
- Each learner was issued with a blank piece of paper.
- The procedure was explained to the learners:
- The spelling test was administered.

5.3.4 Predictors used in this study

As the methodology in this study aimed to answer the research questions, there were pre-determined independent and dependent predictors in this study.

- **The independent predictors**

The independent predictors in this study consisted of the aspects of SMS pertaining to: the use of SMS, SMS language, the recipients of SMS, functional categories of SMS, together with certain self-regulatory strategies of SMS namely: goal setting, strategic planning, self-recording, self-evaluation and self-reaction. The spelling age of the participants has also been identified as an independent predictor in this study.

- **The dependent predictors**

As this study aims to determine whether the changes in spelling, lack of punctuation and informal nature of SMS communication affect a learner's ability to write formally within the context of the English language classroom, the creative writing marks for the June examination are included as the dependent predictor variable.

5.3.5 Statistical techniques used for the analysis of the quantitative data

The statistical analysis of the data in this study took part in two phases. The first phase dealt with the survey of SMS language. Descriptive statistical techniques were applied to organise, analyse and interpret the data according to the various sections identified in the survey. Measurements were recorded as responses to the four-point Likert scale and converted into percentages using the frequency procedure. The means and standard deviations of the items were then also calculated.

The second phase of the statistical analysis process dealt with the Self-regulation Learning in SMS questionnaire. Descriptive statistical techniques were applied to organise, analyse and interpret the quantitative data. The data gathered from the questionnaires was statistically converted by means of the STATISTICA (StatSoft, 2009), SAS (2009) and SPSS (2009) computer software programs to obtain related scores for the purpose of quantitative interpretation. A five-stage statistical procedure was followed.

The initial stage of the statistical analysis involved the calculation of the Confirmatory Factor Analysis for each of the factors in the SMS questionnaires. This involved determining the Kaiser-Meyer Olkin of Sampling Adequacy, Bartlett's Test of Sphericity, the communalities, the Eigenvalues and the pattern matrixes for each of the factors.

The second stage of the statistical analysis involved the calculation of the Cronbach alpha coefficient (α) to determine the reliability of the various categories in the survey and questionnaire.

The third stage of the statistical analysis dealt with the descriptive analysis of the factor scores: means, and standard deviations.

The fourth stage of the statistical procedure involved the calculation of the practical significance (effect size) (d) of differences in means of different groups from the study population. Effect size takes into account the magnitude of the differences between the means of two groups (Cramer *et al.*, 2004: 55; Fraenkel & Wallen, 2008: 244) in relation to the standard deviation. Practical significance provides an indication to whether or not the difference is large enough to have an effect in practice (d -value) (Ellis & Steyn, 2003: 1). According to Cohen (1988: 26) the following guidelines for the interpretation of the practical significance of the results (d -values) can be used:

- Small effect: $d = \leq 0.2$
- Medium effect: $d = 0.5$
- Large effect: $d = \geq 0.8$ (considered practically significant)

The fifth stage of the statistical analysis involved calculating a multiple regression analysis. Multiple regression analysis allows the researcher to determine the correlation between a criterion variable (creative writing mark) and the best combination of two or more predictor variables (self-regulation variables and spelling age) (Cramer & Howitt, 2004: 105; Fraenkel & Wallen, 2008: 331). A stepwise regression analysis involved finding the best relationship to explain how the variation in the dependant variable (creative writing mark) depended on the variation in the independent variables (see Table 6.12). The amount of variation in the dependent variable that is accounted for by the variation of the independent variables is measured by the value of the coefficient of determinant (R^2_{adj}). The closer this is to 1 the better because if R^2_{adj} is 1 then the regression model is accounting for all the variation in the dependent variable.

5.4 Qualitative Research

In addition to the quantitative component of the empirical research, a qualitative study was conducted in order to explain the concepts exposed in the quantitative section of this study.

Using a sequential explanatory mixed-method design (§5.4.4) allows for the researcher to explore and explain the phenomenon identified in the quantitative section of this research study. This study used one-on-one interviews and the transcription of SMS messages in order to collect information.

5.4.1 Participants

Using interlaced sampling (Flick, 2007: 112), twenty-five (n=25) participants of the original study population (or 10 percent) were purposively selected to partake in the interview phase of this study. The reason for selecting 10 percent of the original population lay in the rationale behind using the sequential explanatory mixed-method research design. The rationale of the sequential explanatory mixed-method research design states that the qualitative section (qual) of this study aimed to explain the findings in the quantitative section (QUAN).

After the Self-regulation learning in SMS questionnaires had been analysed, all the participants were given a rank in relation to their self-regulatory skills and spelling ages. Two groups of participants, those with high self-regulation in SMS and high spelling ages and those with low self-regulation and low spelling ages, were identified for participation in this study:

- 7 participants with the highest self-regulation in SMS in high spelling ages (n=7)
- 7 participants with the lowest self-regulation in SMS with low spelling ages (n=7)
- Data saturation (Creswell, 1998: 65; Marshall, 1996: 523; Tuckett, 2004: 50) in the qualitative phase of this study determined that only 14 participants (7 high self-regulators with high spelling ages and 7 low self-regulators with low spelling ages) were interviewed.

5.4.2 Instrumentation

Three methods were used to collect data in the qualitative phase of this study. An interview schedule was developed to measure participants responses to scenarios that were proposed, SMS text messages were transcribed in order to conduct an orthographic analysis of the data and the participants' portfolios were analysed for spelling mistakes related to SMS language.

5.4.3 Validity and reliability

In qualitative research, credibility, dependability and confirmability are sought to ensure that the qualitative research process is reliable and dependent (Shenton, 2004: 63).

- **Credibility**

Within the arena of qualitative research, validity (§5.3.3.1.3) is described as credibility (Struwig & Stead, 2001: 143). Certain steps were taken to ensure the credibility of the research process based on guidelines laid out by Shenton (2004: 65-68):

- Strength of expertise: The strength of this researcher's expertise lies in the fact that she was a senior English teacher for 11 years and taught self-regulation modules at university level.
- Rigorous monitoring of progress and meetings with mentors.
- Thorough review of literature to determine the aim of the study and to verify the results.
- Thorough description of the phenomenon that is being studied so that it can be understood within the relative context.
- Using a recognised research method or design.
- Honesty of the participants is encouraged by the fact that they are not forced to participate and that the researcher is open and sincere with them.

- **Dependability**

The dependability of the study indicates the degree to which a study measures the consequentiality of the data (Shenton, 2004: 64). Dependability was ensured by implementing the following steps:

- Verification of the transcriptions of the interviews, SMS and portfolio pieces can be produced.
- In-depth discussions with experts in the field of self-regulation and SMS language resulted in agreement on the codes that would be used for the analysis of the data in Atlas.ti.

- **Confirmability**

Confirmability of the study indicates the neutrality of the data set (Poggenpoel & Myburgh, 2004).

- Reported confirmability is ensured by the fact that the results of the data were garnered from an independent analyser, in this instance Atlas.ti. (Muhr, 1997)
- Direct quotes or references from the transcribed interviews and SMS text messages confirm that the reported questions were indeed used during the interview.

- The use of check-lists for the identification of spelling mistakes in the participants' portfolios.

5.4.4 Interviews

Interviewing is regarded as an influential tool in gathering information aimed at understanding human behaviour (Koshy, 2005: 92). The purpose of the interviews as part of the qualitative section of this sequential explanatory mixed-method study was to gather in-depth information regarding the participants' experiences in SMS, relating specifically to self-regulatory strategies that they employ in order to SMS effectively. The reasons for the use of one-on-one interviews were also inherent in the rationale for the selection of a mixed-method approach to this study:

- to increase the validity of this research by seeking convergence and corroboration of results,
- information collected from the qualitative study searches for patterns to elaborate, enhance, illustrate and clarify the results found in the quantitative study,
- to plot the development of the research as inferences emerge from the quantitative research study and
- to ensure that a complete picture of the phenomenon is obtained.

5.4.4.1 Interview schedule

The interviews were conducted using a semi-structured interview schedule that specified predetermined questions. Semi-structured questions allowed the interviewer to determine the exact sequence and wording of questions in advance but also allowed the interviewer to probe and cross-check questions during the interview (Fraenkel & Wallen, 2008: 447). The semi-structured part of the interview was developed using the same schedule used by Zimmerman and Martinez-Pons (1986: 614; 1988: 285).

Zimmerman and Martinez-Pons (1986: 615) identified six different learning contexts (i.e. in the classroom, at home, when completing writing assignments outside of the class, when completing mathematics assignments outside of the class, when preparing for and taking tests, and when poorly motivated) where participants were asked to indicate the methods that they used to participate in class, to study, and to complete their assignments. In order to make each context as meaningful as possible to the participants, Zimmerman and Martinez-Pons (1986: 615) provided concrete examples of each context (e.g. *Most educators give tests at the end of marking periods, and these tests greatly determine the grades on a report*

card. Do you have any particular method for preparing for this type of test in English or History?).

The qualitative section of this study aimed to explain the data that were collected from the quantitative section. Thus interview questions were aimed at determining how the predetermined self-regulatory strategies of goal setting, strategic planning, self-recording, self-reflection and self-reaction are used when composing an SMS. Based on the schedule used in Zimmerman and Martinez-Pons's (1986: 615) research, this researcher developed three specific scenarios: an informal scenario (where learners would be expected to use colloquial English), and two more formal scenarios (where learners would be expected to use a more formal Academic English) (§4.2), which aimed to explain the self-regulation components used by the participants. Each scenario was sketched for the participant, and then the questions were asked. These three scenarios were:

- Scenario 1: Informal setting
You are communicating with your best friend. You have both been invited to attend a local party on the week-end. You plan to meet at the mall before going to the party. You have to send an SMS to your friend to make the arrangements.
- Scenario 2: Formal family setting
Your family is attending a family reunion and you have been asked to send an SMS to your grandparents, advising them of the date, time and venue.
- Scenario 3: Formal educational setting
Your English teacher has sent you an SMS regarding a class trip to the Grahamstown Festival. She wants to know if you will be attending the festival and your reasons for attending or not attending. You have to respond to her SMS.

The semi-structured questions were also developed in accordance with the research questions (§1.3) and the theoretical framework of SMS language (§2.7) and Zimmerman's (2000) model of self-regulated learning (§3.5).

The interview questions covered the following categories:

Table 5.21 Categories for data analysis of interviews

<i>SCENARIO 1, 2 & 3</i>			
	Yes	No	Reason
Goal setting			
• Do you set goals for SMS?			
• Think about the content before you SMS?			
• Do you take your time to SMS?			
Strategic planning			
• Framework for SMS			
• Ask questions to focus attention on writing			
• Refer to guidelines of SMS			
• Refer to peers for guidance			
Self-recording			
• Record concepts or words that are not understood or what must be communicated			
• Record trends or fashions in writing			
• Ensure that goal of SMS has been reached			

SCENARIO 1, 2 & 3			
	Yes	No	Reason
Self-reflection			
• Ask questions regarding the content of the SMS			
• Have a good idea of how SMS will be understood			
• Check SMS to make sure it makes sense			
• Ask questions to help focus meaning in SMS (insertion of the emoticon)			
Self-reaction			
• Change the style of the SMS to fit the audience (specifically looking at the why and how)			
• Change the way an SMS is written (specifically looking at the why and how)			
• Reschedule time to SMS			
• Ask for assistance when SMS			
Environment			
• Is the environment manipulated?			

5.4.4.2 Interview procedure

All interviews were conducted in an interview room at the specific High School in question. The data generated from the semi-structured interviews were recorded by means of audio recording equipment. Participants were interviewed at a scheduled time that suited the educators and participants, and which did not interfere with the participants' scholastic timetable. All the Grade 12 learners were interviewed after school so that the interview process would not disrupt their preparations for the examinations. The interviews were between 20 and 30 minutes in length.

Each participant was treated with sensitivity, with the initial task of the researcher being to establish a friendly, secure and cooperative relationship with each participant. The participants were assured of the confidentiality of their participation in the interview and the background of the research and aims of the study were explained in order to provide the participants with the necessary information regarding the research study. According to

Fraenkel and Wallen (2008: 449-450), there are certain sets of behaviours that exist for all interviews: respect the culture of the group being studied, respect the individual being interviewed, be natural, develop an appropriate rapport with the participant, ask the same question in different ways during the interview, ask the interviewee to repeat an answer or statement when there is some doubt about the completeness of a remark, vary who controls the flow of communication and avoid leading questions. The researcher endeavoured to adhere to these behaviours at all times during the interview process.

5.4.4.3 Procedure for interview data analysis

Half of the interviews were transcribed by a qualified transcriber, while the other half of the interviews was transcribed by the researcher in order to gain a greater insight regarding the content of the interviews. The researcher endeavoured to ensure that there were no differences between the transcriptions of the qualified transcriber and those done by the researcher, by rereading the transcriptions while listening to the audio version of the interviews. The qualified transcriber produced a more detailed transcription which included all the background noises identified on the audio recording. The researcher's transcription captured the words of the participant being interviewed.

This study employed the Scientific Software program Computer Aided, Qualitative Analysis Software (CAQDAS), also known as Atlas.ti (Muhr, 1997), in order to code and organise the data (see Appendix 8: compact disc). Atlas.ti is acknowledged as a reliable software programme that is capable of consistent qualitative data-analysis (Lewis, 2004: 439; Smit, 2002: 74). It must be noted that in order to open the Atlas.ti files which have been saved on the compact disc, one must have Atlas.ti on the computer in which the disc is loaded. All the codes and categories which were analysed were saved as Word documents on the compact disc, in order to facilitate the reading and analysis process.

The following steps were implemented in the analysis of the data, using Atlas.ti.

- A file called the Hermeneutic unit was opened, in order to create a text bank of the transcribed interviews and SMS text messages, codes and data sets (see Text bank in Atlas.ti folder on compact disc).
- The transcribed documents were then assigned to the Hermeneutic unit and became primary documents. These primary documents became the workable materials, which the researcher analysed.
- Codes were created using the predetermined concepts that the researcher wished to analyse (i.e. Goal setting in Self-regulation or abbreviations in SMS language).

- The transcriptions were then coded by highlighting sections of the text which were of interest and marked with the correct code.
- Atlas.ti then formatted the codes into an Excel table, which allowed the researcher to identify the self-regulation concepts and then compare and analyse the frequencies and examples (The relationship between self-regulatory components and SMS_CDP_matrix.xls in Text bank folder see Appendix 8: compact disc) in the interviews.
- All the codes were also presented in the Text bank (see Appendix 8: compact disc) as a Word document labeled 'self-regulation codes'.

5.4.5 SMS text messages

SMS vocabulary has many characteristics that are vastly different from formalised writing. Some of these differences include the use of acronyms, abbreviations, rebuses and the omission of vowels and punctuation (Crystal, 2002:85). The participants selected for the qualitative study were asked to voluntarily submit SMS text messages to the researcher for transcription and analysis in order to determine the orthographic nature of the SMS language of this population. This method of data collection using an available population has been used in a study conducted by Tagg (2009).

The General Survey of SMS in the quantitative section of this study (§5.3.3.1) yielded data regarding the use of SMS language. The researcher initiated the collection of SMS text messages, from the participants in this study, in order to explore this phenomenon further and develop a picture of the common features of SMS language for this case. A corpus of SMS respellings was then compiled by the researcher. The categories of the common features of SMS language, with particular emphasis on spelling, were identified from the review of literature. The categories of the misspellings were as follows:

- The use of abbreviations
- Acronyms and initialisms
- Alpha-numeric abbreviations
- Non-standard spellings
- Spoken simulations
- Use of unusual capitalisation
- Use of unusual punctuation
- Emoticons
- Personal style in SMS

5.4.5.1 Procedure of SMS text data analysis

The participants were asked to voluntarily provide examples of SMS messages.

- The researcher provided the participants with a cellular telephone number and the participants forwarded examples of SMS messages that they had written to other people.
- Participants, who did not want to forward SMS text messages, provided their cellular telephones and the actual SMS text messages for transcription.
- These SMS text messages were then transcribed, from the researcher's cellular telephone by the researcher, using the paper and pencil method.
- The SMS text messages were then retyped into a Word document on the computer.
- Using the same procedure as described in the analysis of the interviews (§5.4.2.1.4) the researcher used Atlas.ti to analyse the SMS text messages.
- SMS text messages were coded using codes that identified the orthographic characteristics of SMS language, focussing at the frequency of the misspelling and the form of the misspelling (SMS codes in Text bank see Appendix 8: compact disc).

These orthographic analyses were then used to explain the concepts exposed in the General Survey of SMS.

5.4.6 Participants' portfolios

The research also reviewed creative writing pieces from the participants' English subject portfolios in the qualitative phase of this study. The aim of reviewing these documents lay in the rationale behind this study. One of the purposes of this study was to determine if the manner in which the learners' spell had in any way been influenced by the colloquial nature of SMS spelling and if this spelling had infiltrated the academic writing pieces of these specific participants. The following procedure was followed:

- The researcher developed a checklist (see Appendix 5) which included variations of SMS spelling identified from the review of literature (§2.7).
- The researcher made copies of the creative writing and formal essays in the participants' portfolios.
- The researcher then read the written pieces in order to identify spelling mistakes.
- These spelling mistakes were then indicated on the checklist.

5.5 Ethical aspects

The following ethical aspects were addressed in this study:

- The North West Education Department sent a formal letter to the researcher, granting permission to conduct this research (see Appendix 6).
- Permission was granted by the Head Master of the school in the North West Province.
- Letters of consent were sent out to the intended participants in order to receive the appropriate permission for participation in the research (Cohen *et al.*, 2007: 208-209).
- Informed consent stressed that all participants, learners or educators, had the choice whether to participate or not.
- The confidentiality of each and every participant was guaranteed and respected. Each participant was given a research number to ensure confidentiality.
- This researcher was granted an Ethics number (NWU-00012-10-A2) by the North West University (see Appendix 7). This Ethics number was granted in accordance with the criteria set out by the North West University Ethics Committee.

5.6 Administrative procedures

Permission to conduct the research at a High school in the North West Province was obtained from the Superintendent-General of Education in the North West Province. Each participant was provided with a research number to assist in the categorisation of the data and to ensure confidentiality. A covering letter was also provided with the informed consent to ensure that the participants were informed of the research process. An organised administration system was developed for the completion and filing of questionnaires and interview data. The researcher collected all the completed questionnaires at the end of each session.

The Statistical Consultative Service of the North West University was consulted and arrangements were made for the statistical processing of the data that were gathered.

5.7 Conclusion

This chapter has discussed and detailed the processes and purposes of the mixed-method research design which is rooted in the paradigm of Pragmatism. This chapter has also described the research process according to the following topics: mixed-method research, discerning between the quantitative and qualitative phases of this research study, ethical aspects and administrative procedures. This research was designed so that the related methodologies would yield valid data regarding Short messaging service (SMS) and the specific self-regulated strategies involved with the process of constructing an SMS. The

following chapter discusses the interpretation of the data gleaned from the methodologies described in this chapter.

ANALYSIS AND INTERPRETATION OF DATA

6.1 Introduction

The data were analysed to determine the nature of SMS language and the relationships between self-regulation (§3.5) and SMS use (§2.6). The data were analysed in two phases. In the first phase, the quantitative analyses explored the relationships between self-regulation, spelling age and writing. The second phase, which was qualitative, followed sequentially in order to explain these relationships. In this chapter, the quantitative results (§6.2) were presented first, followed by the qualitative data (§6.3), which included results from the interviews, SMS text message analysis and portfolio document analysis. The data from the quantitative and qualitative sections were integrated into a comprehensive data set (§6.4) for a greater understanding of the nature of SMS language and the relationship between self-regulation and SMS use.

6.2 Quantitative analysis

The quantitative data refers to the recorded data of the General Survey for SMS, the Self-regulated learning in SMS questionnaire and the Schonell Graded Spelling Test. A description of the participants in this study is presented (§ 6.2.1), followed by the analysis of the data garnered from the General Survey for SMS (see Appendix 1) and the Self-regulated learning in SMS questionnaire (see Appendix 2), descriptive statistics of the variables (§6.2.3), effect sizes, and a regression analysis (§6.2.6).

6.2.1 Participants

This section of the analyses is aimed at analysing the data regarding the general biographical information of the participants to provide a frame of reference, allowing the researcher to describe the population of a high school in the North-West province (see Table 6.1).

Table 6.1 Biographical information of participants

Section A: Biographical information (Questions 1-10)	f	%
1. Gender		
Male	101	40
Female	149	60
2. Language		
English	98	42
Afrikaans	9	4
SeTswana	78	34
Other	46	20
3. Age		
12	1	0.3
13	5	2
14	40	15
15	64	25
16	48	19x
17	49	19
18	42	16
19	2	0.7
Missing	8	3
4. Grade		
Grade 8	58	23
Grade 9	57	23
Grade 10	48	19
Grade 11	44	18
Grade 12	43	17
4. Cellular telephone ownership	250	100

The participants in this study comprised all the learners at a high school in the North West Province. This high school was a Catholic private school that catered to learners from different language and religious backgrounds, with English being the medium of instruction. A discussion of the biographical variables follows.

- **Gender**

The majority of the participants in this study were females (60 percent), while males (40 percent) were in the minority.

- **Language**

English first language speakers (42 percent) made up the majority of participants, while Afrikaans speakers (4 percent), SeTswana speakers (34 percent) and speakers of other languages (20 percent) comprised the rest of the participants. Thus, although the medium of instruction was English, 58 percent of the learners did not speak English as a first language.

- **Age**

The ages of the participants ranged between 12 and 19 years. There was only one 12 year old (0.3 percent) and two 19 year olds (0.7 percent). The rest of the learners were aged 13 (2 percent), 14 (15 percent), 15 (25 percent), 16 (19 percent), 17 (19 percent) and 18 (16 percent). The majority of this population (94 percent) thus lay between the ages of 14 – 18. Eight participants did not indicate their age on the General Survey of SMS.

- **Grade**

58 Grade 8 (23 percent) learners were participants in this study, while there were 57 Grade 9's (23 percent), 48 Grade 10's (19 percent), 44 Grade 11's (19 percent) and 43 Grade 12 participants (17 percent).

- **Cellular telephone ownership**

The participants in this study were asked to indicate whether or not they possessed cellular telephones as this study dealt with determining the self-regulatory aspects of constructing an SMS and the characteristics of SMS language. Non-ownership of a cellular telephone would have lead to the participant's exclusion from this study. All 250 (100%) participants indicated that they were in possession of a cellular telephone and were thus included in the study.

- **Summary**

The majority of the participants in this study were female (60%), with only 42% of all participants being English speakers. The participants ranged in age from 12-19 years of age, with the majority of the participants (94%) falling into the age bracket 14-18 year olds. The participants were distributed between the grades with the Grade 8 and 9 groups being slightly bigger because of the fact that they had three classes as opposed to the two classes that made up the grade 10, 11, and 12's. All the participants in this study possessed cellular telephones.

6.2.2 The nature of SMS

Research question 1: *What is the nature of SMS?* was investigated by presenting the data of the survey to reflect the frequency of the responses of the participants as well as to discuss the means and standard deviation of each question within the sub-section.

The mean of the four-point scale was interpreted according to 2 groupings to facilitate an analysis of low and high values. A mean of 1.8 or less was interpreted as a high value, while a mean of 3.2 or more was interpreted as a low value. These high (1.8) and low (3.2) mean values served as a point of reference within the four-point scale as indicators of high or low values. The above-mentioned procedure was applied continuously for the analysis and interpretation of:

- the use of SMS.
- SMS language
- the recipients of SMS
- functional categories of SMS

6.2.2.1 The use of SMS

The purpose of this sub-section of the General Survey of SMS was to determine how the participants primarily used their cellular telephones to communicate. The lower the mean, the more participants agreed with a statement (see Table 5.2 in Chapter 5). The data are presented in Table 6.2.

Table 6.2 The use of SMS

Statements		Strongly agree	Agree	Disagree	Strongly disagree	Mean	SD
9. I use my cell phone to send SMSes	f	79	105	47	18	2.06	0.89
	%	32	42	19	7		
10. I use my cell phone to make telephone calls	f	66	121	46	15	2.04	0.83
	%	27	49	19	6		
11. I use my cell phone to MMS	f	25	51	87	83	2.92	0.97
	%	10	21	35	33		
12. I use my cellular telephone to MXit or visit chat rooms	f	151	61	14	24	1.56	0.96
	%	60	24	6	10		

From Table 6.2 it can be concluded that 84 percent of the participants agreed or strongly agreed that they used their cellular telephones to MXit or visit chatrooms (statement 12) (§2.2.1). This question also had the lowest mean (1.56) for this section. This is a strong indication that the participants in this study used their cellular telephones primarily to visit the MXit or chatrooms (§2.2.1).

Responses to statements 9 and 10 indicated means of 2.06 and 2.04 respectively. In the case of statement 9, 74 percent of participants indicated that they use their cellular telephone to send SMS text messages, while 7 percent indicated that they do not use their cellular telephones to send SMS text messages. Statement 10 revealed that 76 percent of the participants use their cellular telephones to make phone calls. Statement 11 regarding the use of MMS (Multi Message Service) indicates that MMS was used by 31 percent of the participants. With a mean of 2.92, this is the lowest value score for this section.

The data set for the use of SMS in the General Survey of SMS indicated that the participants in this study primarily used their cellular telephones in order to visit the chatroom MXit which is in line with the current literature (§2.2.1).

6.2.2.2 SMS language

The purpose of this sub-section of the survey was to obtain information regarding the participants' use of SMS language. Statements in this section dealt specifically with the participants' use of SMS language (§2.7). Statements were specifically aimed at determining whether participants' used non-standard spelling (statements 13-15) and identified unusual aspects of SMS language (statements 16-22). The data collected for the sub-section of SMS language are presented in Table 6.3.

Table 6.3 SMS language

Statements		Strongly agree	Agree	Disagree	Strongly disagree	Mean	SD
13. I use an abbreviated form of writing when I SMS (e.g. cu & gr8)	f	182	54	8	5	1.34	0.64
	%	73	22	3	2		
14. I use acronyms or initialisms when I write an SMS (e.g. LOL, OMG or JK (just kidding))	f	175	51	17	6	1.41	0.73
	%	70	20	7	2		
15. I use non-standard spelling when I write an SMS (e.g. msg, nxt, every1)	f	161	63	13	9	1.47	0.76
	%	65	26	5	4		
16. My SMS's often look like the spoken word (e.g. this is soooo wrong, Dat is so sad, sigh)	f	89	96	48	18	1.98	0.91
	%	35	38	19	7		
17. I use my capitalization in my SMS messages (e.g. this is VERY important)	f	102	95	31	20	1.88	0.92
	%	41	38	13	8		
18. I use punctuation correctly in my SMS messages (e.g. full stops (.) or commas (,))	f	65	74	66	45	2.36	1.06
	%	26	30	26	18		
19. I use punctuation in my SMS messages, for effect or emphasis (e.g. maybe.....or No!)	f	149	75	18	9	1.55	0.78
	%	59	30	7	4		
20. I use unusual combinations of punctuation in my SMS messages (e.g. \$%@\$!)	f	43	59	63	86	2.76	1.10
	%	17	24	25	34		
21. I use smileys or emoticons in my SMS messages (e.g. :-])	f	146	74	16	14	1.59	0.84
	%	58	30	6	6		
22. I use personal style when composing an SMS	f	76	124	40	7	1.91	0.76
	%	31	50	16	3		

An analysis of Table 6.3 reveals that the majority of the participants (95 percent) indicated that they used an abbreviated form of writing when sending a SMS text message (§2.7.1.1). The other statements regarding SMS language revealed that:

- 90 percent of participants indicated that they use acronyms or initialisms (§2.7.1.2) when writing a SMS. The mean for this question was calculated at 1.41 indicating a high value that the participants do use acronyms and initialisms in their SMS text messages.
- 91 percent of participants' indicated that they used non-standard variations of spelling in their SMSes, with a mean of 1.47 indicating a high value.

- 73 percent of participants indicated that their SMSes reflected the spoken word (§2.7.2.1), with this statement revealing a mean of 1.98 indicating a reasonable value.
- 79 percent of participants indicated that they used capitalization (§2.7.2.2) in their SMS's (e.g. this is VERY important). This statement yielded a mean of 1.88 which is considered high and as such, is of value.
- 56 percent of participants indicated that they used punctuation correctly in their SMSes (§2.7.2.3), with a mean of 2.36 indicating a mixed response from the participants.
- The use of punctuation for effect or emphasis recorded a high mean of 1.55 thus indicating that punctuation was used for emphasis by the participants (89 percent).
- 41 percent (2.76) of participants indicated that they did use unusual combinations of punctuation in their SMS text messages. It can be deduced from this fact that participants were employing punctuation in their SMS text messages for effect and emphasis, rather than paying attention to the correct use of punctuation in SMS text messages. What stands at odds with the review of literature though (§2.7.2.3) is the fact that the participants in this study did not use unusual combinations of punctuation in their SMS messages.
- 88 percent of participants, with a mean score of 1.59, indicated that they did use emoticons or smileys in their SMSes (statement 21). The mean score also indicates that this statement is of a high value.
- 81 percent of participants indicated that they used personal style (§2.9) when composing a SMS. The mean score for this statement was calculated at 1.91 indicating a reasonable value for this statement.

An analysis of the lowest means revealed the following: the statement with the lowest mean (1.34) was an indication by the participants that they do use a form of abbreviated language when writing a SMS (statement 13). This response can be viewed together with the response from statements 14, 15, 19 and 21, which all related to the unusual orthographic nature of SMS language (§2.7). These responses reflect the fact that the participants were indeed using abbreviations, acronyms, non-standard spelling, punctuation for emphasis and emoticons in their SMS text messages which is in line with what is stated in the literature (§2.7).

6.2.2.3 The recipients of SMSes

This sub-section of the General Survey of SMS (statements 23 to 30) dealt with the persons a participant would most likely communicate with via SMS. The reason for including these statements in this sub-section of the Survey was to determine with whom the participants communicated most, the assumption being that the participants' register for the SMS text message would change if they were sending SMS text messages to different people, just as their register changes when they write formal academic essays (§4.3.3). The results for this section appear in Table 6.4.

Table 6.4 Recipients of SMSes

Statement		Strongly agree	Agree	Disagree	Strongly disagree	Mean	SD
23. I send SMSes to my parents	f	116	99	23	13	1.73	0.83
	%	46	39	9	5		
24. I send SMSes to my brother/s or/and sister/s	f	78	84	38	47	2.22	1.09
	%	32	34	15	19		
25. I send SMSes to my cousin/s	f	83	95	41	32	2.09	1.00
	%	33	38	16	13		
26. I send SMSes to my aunt/s or/and uncle/s	f	42	74	67	65	2.63	1.05
	%	17	30	27	26		
27. I send my SMSes to my grandparents	f	24	37	71	117	3.13	0.99
	%	10	15	29	47		
28. I send SMSes to acquaintances (people that you know but who are not really friends)	f	32	58	74	85	2.85	1.03
	%	13	23	30	34		
29. I send SMSes to my friend/s	f	176	62	5	6	1.36	0.65
	%	71	25	2	2		
30. I send SMSes to my girlfriend/boyfriend or wife/husband	f	157	49	11	29	1.64	1.02
	%	64	20	4	12		

A factor analysis conducted in the preliminary stages of the statistical analysis procedure identified two factors related to this section of the survey (see Table 5.3). The factors identified were: SMS text messages sent to family members and to non-family members. The results from the first factor, SMS text messages sent to family members, revealed the following:

- 85 percent (1.73) of participants' indicated that they send SMSes to their parents (statement 23),
- 68 percent (2.21) to their siblings (statement 24) while
- 71 percent (2.09) indicated that they send SMS' to their cousins.
- 47 percent (2.63) of participants' sent SMS's to their aunts and uncles with only
- 25% (3.13) of participants' indicating that they send SMSes to their grandparents.

The lowest mean in this sub-section (1.73) indicated a high value associated with the fact that the participants do send SMS text messages to their parents. Statements 24, 25 and 26 indicate average mean scores which indicate that the responses were distributed at both ends of the rating scale. Statement 27 indicates a higher mean score (3.13) indicating that learners tend not to send their grandparents SMS text messages.

Statements in the next section (28-30), aimed to determine whether or not the participants sent SMS text messages to non-family members. The statement that indicated the lowest mean value (1.36) was statement 29, with

- 96 percent of the participants indicating that they sent SMS's to friends.
- Statement 30, which dealt with SMS text messages sent to boy/girl friends, calculated a lower mean (1.64) than that of statement 29, but still yielded a high value, with 84 percent of participants' indicating that they sent SMS's to their boy/girl friends.
- SMS text messages that are sent to acquaintances (statement 28) yielded the highest mean score (2.85) indicating a lower value for this question with 36 percent of the participants' sending this type of SMS.

The second lowest mean (1.36) related to the fact that the participants indicated that they sent SMS text messages to their friends. This response can be interpreted with comparable responses to statement 30 and 23 which indicated that the participants also sent a majority of their text messages to their boy/girl friends and their parents.

6.2.2.4 Functional categories of SMSes

This sub-section of the General Survey of SMS was included in order to determine why the participants send SMS text messages. The data are presented in table 6.5.

Table 6.5 Functional categories of SMSes

Statements		Strongly agree	Agree	Disagree	Strongly disagree	Means	Standard deviation
35. The SMSes that I send are in order to make practical arrangements	<i>f</i>	62	135	39	8	1.97	0.74
	%	25	55	16	3		
36. The SMSes that I send are to ask for personal favours	<i>f</i>	42	137	58	13	2.17	0.76
	%	17	55	23	5		
37. The SMSes that I send are to exchange practical details	<i>f</i>	31	118	79	22	2.37	0.81
	%	12	47	32	9		
38. The SMSes that I send are to organise my social life	<i>f</i>	90	102	46	12	1.92	0.86
	%	36	41	18	5		
39. The SMSes that I send are simple, friendly greetings	<i>f</i>	109	92	37	12	1.81	0.86
	%	44	37	15	5		
40. The SMSes that I send are to maintain friendships	<i>f</i>	92	102	44	12	1.90	0.85
	%	37	41	18	5		
41. The SMSes that I send are gossip	<i>f</i>	13	38	84	116	3.20	0.88
	%	5	15	33	46		
42. The SMSes that I send are romantic messages	<i>f</i>	48	106	53	44	2.37	0.98
	%	19	42	21	18		
43. The SMSes that I send are sexual messages	<i>f</i>	3	27	46	175	3.57	0.73
	%	1	11	18	70		
44. The SMSes that I send are chain letters	<i>f</i>	8	44	77	122	3.25	0.85
	%	3	18	31	49		
45. The SMSes that I send are religious	<i>f</i>	17	84	94	55	2.75	0.88
	%	7	34	38	22		

The factor analysis identified four related constructs that compose the functional categories of SMS (see Table 5.13).

- The lowest mean that was indicated for this section was 1.81, with 81 percent of the participants indicating that they send SMS text messages that are simple, friendly greetings (statement 39).
- 80 percent (1.97) of participants indicated that the SMS that they sent were in order to make practical arrangements (statement 37),
- with 78 percent (1.90) of participants indicated that they sent SMSes in order to maintain friendships (statements 40).

- With a relatively low value of 1.92, statement 38 indicated that 77 percent of participants agreed with the fact that the SMS text message that they sent were in order to organise their social lives.

An analysis of this factor revealed that the participants in this study prefer to send SMS text messages which serve the purpose of making practical arrangements, maintaining friendships, organising their social lives and remaining in contact with one another through simple greetings.

Statements regarding personal favours (2.17), romantic messages (2.37), religious messages (2.75) and the exchange of practical details (2.37) all indicated that the participants' responses were ranged over the entire rating scale,

- 72 percent of the participants indicated that they did agree with the fact that SMS text messages were sent in order to ask personal favours (statement 36), while
- 61 percent indicated that they sent romantic SMS text messages (statement 42).
- Only 59 percent of the participants indicated that they used SMS text messages to exchange practical details (statement 37) with 41 percent of participants sending religious messages.

To a lesser degree, the participants in this study used SMS text messages to ask for personal favours, sent romantic and religious messages and exchanged practical details.

The highest means were calculated for statement 43 (3.57), statement 44 (3.25) and statement 41 (3.20):

- Statement 43 dealt with the aspect of sexual communication via SMS message (\$2.65), with only 12 percent of participants indicated that they sent SMS messages that were sexual in nature.
- Statement 41 was aimed at determining whether the participants used SMS text messages to gossip, but the high mean score and the fact that only 12 percent of participants indicated that they use SMS to gossip, proves that for this study population, SMS was not used to gossip.
- Statement 44 had a mean score of 3.25 indicating a low value with only 21 percent of participants indicating that they sent chain letters via SMS text message.

It can therefore be concluded that the participants in this study did not use SMS text messages to communicate sexual content, gossip or send chain letters.

6.2.2.5 Discussion of the nature of SMS

It has been noted that in South Africa there has been a marked rise in the use of MXit (Chigona *et al.*, 2009: 3). The participants in this study use their cellular telephones primarily to visit the chatroom MXit (§2.2.1). These participants also use their cellular telephones to make telephone calls to a lesser degree.

SMS language is restricted by the small screen of the cellular telephone and as such has evolved into a truncated, abbreviated form of writing (Crystal, 2008b: 6). This language is characterised by abbreviations, acronyms, alpha-numeric homophones, unorthodox spelling and accent stylisations (Cadhain, 2005; Carrington, 2005; Crystal, 2002b: 229; 2008a; 2008b: 37). The use of an abbreviated form of language is employed by the participants in this study when they construct an SMS text message. These participants use abbreviations (§2.7.1.1), acronyms (§2.7.1.2), non-standard spelling (§2.7.1.3), punctuation for emphasis (§2.7.2.3) and emoticons (§2.7.3) in the construction of their SMS text messages.

According to Crystal (2002b:89) and Cadhain (2005), punctuation is often used minimalistically and/or not at all in SMS messages. The participants in this study do not use unusual combinations of punctuation in their SMS text messages which is contrary to what is indicated in the literature (§2.7.2.3).

Castells *et al.* (2004) found that most people employ text messaging to communicate with friends (73%), family (70%) and less frequently, with business contacts (26%). The participants in this study indicated that they primarily send SMS text messages to their friends, boy/girl friends and parents.

A study conducted by Thurlow (2003b) found that most SMS text messages were highly intimate and relational in nature. In this study, SMS text messages were sent in order to make practical arrangements, maintain friendships, organise social lives and to remain in contact via simple greetings (§2.6.3). The participants in this study did not send SMS text messages that had a sexual orientation, were gossip or chain letters, which stands at odds with what has been revealed in the literature (Thurlow, 2003b).

6.2.3 Descriptive statistics for the latent factors

The descriptive statistics for each variable related to spelling age, SMS and self-regulation in SMS are presented in Table 6.6.

Table 6.6 Descriptive statistics for the latent factors

Variable	Mean	SD	Minimum	Maximum
Spelling age	12.83	1.19	9.3	14.67
SMS variables				
Use of SMS	2.15	0.60	1	3.75
Non-standard spelling	1.72	0.56	1	3.75
Unusual aspects of SMS	1.95	0.58	1	3.83
Family members	2.36	0.69	1	4
Non-family members	1.96	0.65	1	4
Practical arrangements	2.11	0.56	1	3.75
Maintaining friendships	1.85	0.75	1	4
Chain messages	3.09	0.64	1.25	4
Self-regulation variables				
Goal setting	2.60	0.78	1	5
Strategic planning	2.49	0.76	1	4.66
Self-recording	2.88	0.78	1.28	5
Self-evaluation	3.27	0.72	1.25	5
Self-reaction	3.41	0.65	1.60	5

6.2.3.1 Spelling age

An analysis of the data presented in Table 6.6 indicates that the participants in this study had an average spelling age of 12.83. The highest spelling age that was measured was 14.67 years and the lowest was 9.3 years.

6.2.3.2 SMS variables

A discussion of the specific statements relating to the General Survey of SMS (§6.2.2) was undertaken in order to fully understand and answer **research question 1** which asked: *What is the nature of SMS?* As the factor analysis of the General Survey of SMS indicated eight specific factors related to the nature of SMS, the descriptive statistics for these latent factors are also discussed. The mean of the four-point scale was interpreted according to 2

groupings to facilitate an analysis of low and high values. A mean of 1.8 or less was interpreted as a high value, while a mean of 3.2 or more was interpreted as a low value. These high (1.8) and low (3.2) mean values served as a point of reference within the four-point scale as indicators of high or low values.

- The use of SMS indicated an average mean score (2.15) which indicates that the responses regarding the use of SMS were distributed at both ends of the rating scale.
- Non-standard spelling has a mean of 1.72 and the unusual aspects of SMS specify a mean of 1.95. As both of these means have high values, it can be inferred that the participants in this study indicated that they did use non-standard spelling and unusual aspects of SMS when they composed an SMS text message. The descriptive statistics indicate that the participants tended to use non-standard spelling (mean=1.72) more than the unusual aspects (mean=1.95) as the non-standard spelling aspects indicate a lower mean and therefore a higher value.
- An analysis of the means of the factors relating to the recipients of SMS text messages indicates that the participants in this study sent more SMS text messages to non-family members (mean=1.96) than family members (mean=2.36).
- An analysis of the factor related to maintaining friendships indicates a mean of 1.85. This is a high value mean, indicative of the fact that the participants in this study sent SMS text messages in order to maintain friendships. Participants also used SMS text messages to make practical arrangements (mean=2.11) to a lesser degree and the use of chain messages (mean=3.09) has the lowest value mean which indicates that sending chain messages was not a priority for the participants in this study.

6.2.3.3 Self-regulation variables

The mean of the five-point scale of the Self-regulated learning in SMS questionnaire was interpreted according to three groupings to facilitate an analysis of low and high values. A mean of 1.5 or less was interpreted as a low value while a mean of 3 indicated a moderate value, with a mean of 4.5 indicating a high value. These low or high values served as a point of reference within the five-point scale as indicators of low or high values.

The self-regulatory strategies of goal setting (mean=2.60), strategic planning (mean=2.49) and self-recording (mean=2.88) indicated an upward trend toward moderate means (i.e. leaning toward low values) indicative of a mixed response from the participants. This can be interpreted as meaning that the participants in this study did sometimes make use of these

self-regulatory strategies for some of the SMS text messages which they wrote, while other participants did not make use of these strategies.

The self-regulatory strategies of self-evaluation (mean=3.27) and self-reaction (mean=3.41) indicated moderate means, which were slightly higher in value than the previously stated strategies of goal setting, strategic planning and self-recording. Although the means for self-evaluation and self-reaction were higher in value, these means were still moderate and did not indicate either a high or low value. This may be interpreted to mean that the participants in this study indicated that they may have used these strategies for certain contexts of SMS text messaging.

6.2.4 Relationship between spelling age, self-regulation and creative writing achievement

The rationale behind conducting a statistical analysis of the spelling age of the participants' in this study lies in answering **research question 3**: *Is there a relationship between self-regulation in SMS and spelling age, and if so, what is the nature of this relationship?* and **research question 4**: *What is the nature of the relationship between writing and spelling age?*

In order to determine whether a relationship exists between self-regulation in SMS and spelling age, and writing and spelling age, effect sizes were calculated to determine if the practical significance was large enough to have an effect in practice (Ellis & Steyn, 2003: 2). The analyses of the data are presented in Table 6.7.

Table 6.7 Spelling age

SPELLING AGE							
	Age 14		Age 15				
Variables	Mean	SD	Mean	SD	t-value	p	d
Creative writing	57.47	12.25	61.10	10.65	2.18	0.03	0.30*
Goal setting	2.44	0.80	2.64	0.77	1.69	0.09	0.25
Strategic planning	2.55	0.82	2.48	0.75	0.61	0.54	0.09
Self-recording	2.80	0.81	2.89	0.78	0.77	0.44	0.11
Self-evaluation	3.16	0.80	3.30	0.69	1.30	0.19	0.18
Self-reaction	3.34	0.60	3.43	0.66	0.9	0.14	0.14
*Small effect $d \leq 0.2$							
** Medium effect $d=0.5$							
***Large effect $d \geq 0.8$							

An analysis of Table 6.7 indicates that the participants who should have a spelling age of 14 years have an average creative writing mark of 57.47 percent while participants who should have a spelling age of 15 have an average creative writing mark of 61.10 percent. What can be deduced from this analysis is that even though the effect size (0.30) is of small practical value, the creative writing achievement mark does improve as the spelling age of the participants' increases. Thus, the higher the spelling age, the higher the creative writing mark of the participants in this study.

A small effect size was indicated for goal setting ($d=0.25$), strategic planning ($d=0.09$), self-recording ($d=0.11$), self-evaluation ($d=0.18$) and self-reaction ($d=0.14$), in relation to spelling age, which indicates that the effect is not practically significant. It can be deduced that a participant's spelling age does not have a practical effect on the self-regulatory strategy use in SMS. It can thus be stated that a relationship between self-regulation in SMS and spelling age does not exist.

6.2.5 The relationship between self-regulation and SMS

In order to answer **research question 6** and *determine if a relationship exists between self-regulation and SMS*, the effect sizes between high self-regulators and low self-regulators were calculated to ascertain which of the self-regulation strategies had the most practical significance. These findings are presented in Table 6.8.

Table 6.8 Self-regulation and SMS

SELF REGULATION IN SMS							
	High		Low				
Variables	Mean	SD	Mean	SD	t-value	p	d
Creative writing	71.4	7.50	54.91	8.38	5.08	0.00	1.97***
Chronological Age	16.50	1.68	15.61	1.26	1.49	0.45	0.54**
Goal setting	3.06	0.58	1.56	0.38	7.64	0.00	2.57***
Strategic planning	2.96	0.33	1.75	0.40	8.18	0.00	3.02***
Self-recording	3.52	0.44	1.95	0.36	9.93	0.00	3.62***
Self-evaluation	4.02	0.36	2.38	0.25	13.07	0.00	4.50***
Self-reaction	4.18	0.46	2.71	0.54	7.31	0.00	2.74***
*Small effect $d \leq 0.2$ ** Medium effect $d=0.5$ ***Large effect $d \geq 0.8$							

Large effect sizes ($d \geq 0.8$) were indicated for goal setting ($d = 2.57$), strategic planning ($d = 3.02$), self-recording ($d = 3.62$), self-evaluation ($d = 4.50$) and self-reaction ($d = 2.74$). This indicates that high self-regulators use these self-regulatory strategies while engaging in the construction of SMS text messages more than low self-regulators.

A large effect size ($d=1.97$) was also indicated for the differences in the creative writing mark for these two groups. It can be inferred from this that high self-regulators in SMS also have higher academic writing marks than their lower self-regulatory counterparts.

As seen in Table 6.8, high self-regulators are more inclined to employ self-regulatory skills when constructing a SMS text message than low self-regulators. It can therefore be stated that the higher the level of self-regulation possessed by a participant, the more inclined that participant would be to ensure that a correct SMS text message is sent. Thus it can be stated that a relationship does exist between self-regulation and SMS. The qualitative phase of this study endeavoured to explain how these self-regulatory aspects of SMS come to the fore in different contexts of SMS text messaging (§6.3.2).

6.2.6 The relationship between writing and spelling age

To answer **research questions 4** (§1.3) multiple regression analysis was performed (see Table 6.9) to determine if there is a *relationship between writing and spelling age*. An

analysis of Table 6.9 reveals that the complete set of independent variables explains 29.7 percent ($R^2 = 0.2977$; $R^2_{adj} = 0.2773$) of the variance in the creative writing mark.

Table 6.9 Standard regression analysis: creative writing

<i>Independent Variable</i>	<i>b*</i>	<i>Std. Err of b*</i>	<i>b</i>	<i>Std Err of b</i>	<i>t (207)</i>	<i>p-value</i>
Spelling age	0.45	0.60	4.30	0.58	7.45	0.00
Goal setting	0.01	0.08	0.16	1.16	0.13	0.89
Strategic planning	0.21	0.10	3.19	1.55	2.06	0.04
Self-recording	0.04	0.10	0.57	1.49	0.38	0.70
Self-evaluation	0.15	0.09	2.32	1.44	1.61	0.11
Self-reaction	0.19	0.081	3.29	1.38	2.38	0.02
$R^2 = 0.2977$; $R^2_{adj} = 0.2773$ (N= 214, $p < 0.0000$)						

By using the forward step-wise regression method the best subset of independent variables i.e. the smallest subset of independent variables that contributes the most to R^2 , was identified (see Table 6.10).

Table 6.10 Forward step-wise Regression of creative writing

<i>Independent Variable</i>	<i>b*</i>	<i>Std. Err of b*</i>	<i>b</i>	<i>Std Err of b</i>	<i>t (207)</i>	<i>p-value</i>
Spelling age	0.45	0.06	4.32	0.57	7.54	0.00
Strategic planning	0.19	0.08	2.79	1.26	2.22	0.03
Self-reaction	0.2	0.08	3.39	1.35	2.52	0.01
Self-evaluation	0.14	0.09	2.13	1.37	1.55	0.12
$R^2 = 0.2970$; $R^2_{adj} = 0.2835$ (N= 214, $p < 0.0000$)						

The spelling age ($b^*=0.45$) of the participants, their strategic planning ($b^*=0.19$), self-reaction ($b^*=0.2$) and self-evaluation ($b^*=0.14$) were retained by the forward step wise regression analysis as indicators of components that have an influence on the R^2 .

This subset was then subjected to further regression analysis to determine the contribution of each independent variable to R^2 . The results of the forward-wise step regression analysis are presented in Table 6.11.

Table 6.11 Summary of forward-wise step regression of dependent variable: creative writing

Variable	b	Standard Error of β	B	R^2	Contribution to R^2
Spelling age	0.45	0.06	4.32	0.25	0.25***
Strategic planning	-0.19	0.08	-2.79	0.27	0.03*
Self-reaction	0.2	0.08	3.39	0.29	0.01*
Self-evaluation	-0.14	0.09	-2.13	0.3	0.0008
*Small effect $r=0.01$					
**Medium effect $r=0.1$					
***Large effect $r=0.25$					

An analysis of Table 6.11 reveals that only one variable, spelling age, ($R^2 = 0.25$) made a statistically significant contribution to R^2 . The reason for this is that the higher the contribution to R^2 , one can predict the influence that an independent variable (i.e. spelling age) may have on the overall value of the dependent variable (i.e. creative writing). If the value of R^2 is closer to 1.0, the greater the predictability of the value of the independent variable on the dependent variable will be. None of the other independent variables related to self-regulation in SMS made a practically significant contribution to R^2 .

A back-ward step regression analysis was then performed in order to determine the variable with the most influence on the R^2 . Table 6. 12 reveals that the only independent variable that makes a statistically significant contribution to the English creative writing mark, is the spelling age of the learners.

Table 6.12 Back-ward step regression analysis: creative writing

Independent Variable	b	Std. Err of β	b	Std Err of b	t (207)	p-value
Spelling age	0.499	0.06	4.74	0.56	8.39	0.00
$R^2 = 0.2496$ $R^2_{adj} = 0.2461$ (N= 214, $p < 0.00000$)						

The relationship between writing achievement and spelling age is thus proved, with the spelling age contributing to 25 percent of the creative writing mark. Thus, it can be stated that

the higher the participant's spelling age, the higher the creative writing mark of that participant will be.

6.2.7 Conclusion to quantitative analysis

The quantitative phase of this study comprised a three-fold survey design (§5.3) in which a General Survey of SMS; a self-regulated learning in SMS questionnaire; and The Schonell Graded Spelling Test were used to collect data from the participants. These data were then statistically analysed in order to address the research questions (§1.3) which had been posed.

The data regarding the nature of SMS (i.e. **research question 1: *what is the nature of SMS?***) were analysed and presented (§6.2.2). That data from the General survey of SMS indicated that the participants in this study primarily send SMS text messages via the forum of MXit, where they use an abbreviated form of language. These participants tend to communicate with their friends and girl/boy friends, as well as their parents. These participants also tend to make use of SMS text messages in order to make practical arrangements, maintain friendships and organise their social lives (§6.2.2.5). The qualitative phase (§6.3.1) of this study investigated **research question 2: *does SMS language lead to changes in spelling and if so, what is the nature of the changes in spelling?***

In order to address **research question 3: *is there a relationship between self-regulation in SMS and spelling age and if so, what is the nature of this relationship?*** effect sizes were calculated to determine practical significance (§6.2.4 and Table 6.7). A small effect size was indicated for goal setting ($d=0.25$), strategic planning ($d=0.09$), self-recording ($d=0.11$), self-evaluation ($d=0.18$) and self-reaction ($d=0.14$), in relation to spelling age, which indicates that the effect is not practically significant. It can thus be deduced that a participant's spelling age does not have a practical effect on the self-regulatory strategy use in SMS. It can thus be stated that a relationship between self-regulation in SMS and spelling age does not exist.

In order to address **research question 4: *What is the relationship between writing and spelling age?*** the final statistical technique which was calculated, was a regression analysis, in order to determine which of the independent variables contributed the most to the R^2 (§6.2.6). It was found that spelling age contributed 25 percent of the creative writing mark, thus indicating that there is a relationship between writing and spelling age.

In order to determine if a relationship exists between writing and self-regulation in SMS (i.e. **research question 5**) effect sizes were calculated between high self-regulators and low self-regulators regarding their creative writing mark (see Table 6.8). A large effect size ($d=1.97$)

was indicated for the differences in the creative writing mark for these two groups. It can be inferred from this that high self-regulators in SMS also have higher academic writing marks than their lower self-regulatory counterparts. A regression analysis was also calculated (§6.2.6) which indicated that none of the self-regulatory strategies (i.e. goal setting, strategic planning, self-recording, self-evaluation and self-reaction) contributed to the R^2 or had any meaningful effect on the creative writing mark. Because self-regulation is context specific, it can be inferred that the specific self-regulatory strategies used in SMS would not influence the manner in which the participants write formally within the academic context. Spelling age is the greater contributor to the creative writing mark.

In order to address **research question 6**: *is there a relationship between self-regulation and SMS and if such a relationship exists, what is the nature of this relationship?* the means procedure for the Self-regulated learning in SMS questionnaire was presented in Table 6.6. An analysis of the means indicated that self-regulatory strategies were moderately applied in SMS contexts (§6.2.3). Further investigation of this phenomenon was conducted when the data were analysed from the interviews in the qualitative phase of this study (§6.3.2) and a full discussion of the phenomenon was illustrated when the data were merged (§6.4.2).

6.3 Qualitative analysis

In order to explain the phenomena exposed in the quantitative phase of this study (§6.2.2), a qualitative analysis of SMS text messages (§5.4.5) was undertaken to interpret the changes in the orthographic nature of SMS language that has manifested itself in the text messages (i.e. **research question 2**). Interviews were also conducted (§5.4.4) in order to explain and elucidate the findings of the statistical analysis of the Self-regulated learning for SMS questionnaire (§6.2.5) regarding the self-regulatory behaviours of the participants in this study, specifically in order to address **research question 6**.

The first section of the qualitative analysis deals with the orthographic analysis of the SMS text messages (§6.3.1), with an analysis of the interviews following (§6.3.2).

6.3.1 The nature of SMS

An analysis of 78 SMSes (that comprised 1933 words) revealed several orthographic characteristics of the language used by the participants in the qualitative phase of this study (§5.4.5). The SMS language was categorised using the same categories identified in the review of literature (§2.7). These categories were: abbreviations (§2.7.1.1), acronyms and initialisms (§2.7.1.2), rebuses and alpha-numeric homophones (§2.7.1.3), simulation of the

spoken word (§2.7.2.1), capitalisation, (§2.7.2.2), punctuation (§2.7.2.3), emoticons (§2.7.3) and novelties in SMS (§2.8).

6.3.1.1 Abbreviations

According to Thurlow (2003b), Crystal (2008b: 45) and Tagg (2009: 148) the most common abbreviations that are found in SMS language are shortenings, contractions and clippings. When the SMS text messages were analysed the most common abbreviations were shortenings (see Table 6.13), vowel omissions (see Table 6.14), contractions (see Table 6.15) and clippings (see Table 6.16).

- **Shortenings**

Forty seven percent of all the abbreviations in the SMSes analysed in this study were shortenings. See Table 6.13 for examples of the various shortenings found in the SMS text messages that were analysed.

When the participants in this study engage in writing an informal SMS text message, words are often shortened. These shortenings include: combining words, consonant insertion, consonant insertion, double letter reduction, vowel omissions, vowel sound replacements and x or z endings.

Words are often combined in order to shorten them and reflect accent stylisations (e.g. 'kinda', 'wanna', 'alil', 'gna', 'gona', 'nevamind', 'bgud', 'lotsa'). The word 'kinda' is a combination of kind + of, while 'nevamind' is a combination of never + mind.

The insertion of consonants into a word serves two purposes: to mimic accent stylisations and to shorten a word. An example of the insertion of a consonant into a word to reflect an accent is: 'sowi' and 'fwendshp' where the 'r' sound has been replaced by a 'w' sound. The purpose of this is to sound like a little child. The insertion of the 'u' in the word 'cum' allows the word 'come' to be shortened.

Table 6.13 Shortenings in SMS language

FORM	EXAMPLE
@ for at	@
b for be	'b'
bwt for about	'bwt'
c for see	'c'
ck reduction to k	back > 'bk' luck > 'luk'
Combinations of words	kind of > 'kinda' a little > 'alil' going to > 'gona' be good > 'bgud'
Consonant insertion	school > 'skwl' enough > 'enuf' come > 'cum' sorry > 'sowi'
d for th	than > 'dan' this > 'dis'
da for the	the > 'da'
Double f reduction to f	stuff > 'stuf'
Double l reduction	all > 'al' call > 'cal' I'll > 'il' still > 'stil' well > 'wel'
Double r reduction to r	sorry > 'sry' or 'sory' or 'sowi'
f for gh	enough > 'enuf'
f for ph	phone > 'fone'
Huz for who is	who is > 'huz'
k for okay	okay > 'k'
n for and	And > 'n'
n for ing	missing > 'misn'
Nd for and	And > 'nd'
Ni for any	Any > 'ni'
r for are	Are > 'r'
sch reduction	school > 'skwl'
th reduction to t	something > 'sumting' thanks > 'tx' or 'tnx' or 'tnk' with > 'wiT'
x-ending	stacks > 'stax' sucks > 'sux' thanks > 'Tx' or 'Tnx' or 'Thnx' or 'Thanx' 'Thax'
z-ending	because > 'bcz or 'coz' friends . 'fwndz' or 'friendz' please > 'plz' rumours > 'rumerz'

Consonant reduction takes the form of double letter reduction in the following examples: 'stuf' for 'stuff', 'al' for 'all', 'cal' for 'call', 'dol' for 'doll', 'hel' for 'hell', 'il' for 'I'll', 'lil' for 'little', 'sowi' for 'sorry', 'stil' for 'still', 'telin' for 'telling', 'wel' for 'well' and 'wil' for 'will'.

Another common form of shortening words involves replacing 'ck's' endings with 'x'. Once again, the 'x' represents a sound (i.e. 'stax' for 'stacks', 'sux' for 'sucks'). The word that most commonly uses the 'x' ending is the word 'thank you'. 'Thank you' is abbreviated to 'tx', 'tnx',

'thnx', 'thnx' and 'thax'. The common denominator here is the fact that no matter how the word 'thank you' is shortened, it always ends with the letter 'x'.

Ending an abbreviation with a 'z' is also a form of shortening a word used in SMS language by the participants in this study. The use of a 'z-ending' usually follows a word that would have ended with a 'se' or a plural 's' (i.e. 'cOz' for 'because', 'friendz', 'plz' and 'rumerz').

- **Vowel omission in SMS**

Nineteen percent of all the words analysed in this study comprised words which had missing vowels. Vowels were omitted from words in order to shorten the word and were omitted from the beginning, the middle and the end of a word. Patterns of vowel omission from the analysis of SMSes in this study are presented in Table 6.14.

Table 6.14 Vowel omission in SMS

Form	Example
End-vowel omission	Are > 'ar' awesome > 'Awsm' or 'awsum' have > 'hav' or 'hv' or 'hving' love > 'lov'
First vowel omission	about > 'bout' enjoy > 'njoy' entertain > 'ntertain'
Mid-vowel omission	about > 'abt' amazing > 'amzing' anymore > 'anymre' back > 'bk' but > 'bt' can > 'cn' confident > 'cnfidnt' check > 'chck' discharged > 'dschargd' don't > 'dnt' everyday > 'evryday' hope > 'hpe' just > 'jst' know > 'knw' number > 'nmbr' sleep > 'slp' this > 'ths' wanted > 'wntd' weekend > 'wknd'
Miscellaneous vowel reduction	lesson > 'Lesn' people > 'pPl' quarter > 'qurta'
O for oh	Oh > 'o'
Ough reduction to o	though > 'tho'
u for ome	awesome > 'awsum' come > 'cum' or 'cuming' something > 'sumting'
u for oo	Be good > 'bgud' Good > 'gud' Look > 'luk' or 'lukiing'
u for oul	Could > 'cud' or 'cudnt' Would > 'wud'
u for you	You > 'u'
ur for you are	You are > 'ur'
ur for your	Your > 'ur'

Form	Example
Y for i while dropping the 'e'	Mile > 'myl' Night > 'nyt' Life > 'lyf' Like > 'lyk' Fine > 'FYN' Time > 'tym'

Vowel omission is a very common method used by these participants in order to shorten words. End-vowel omissions and mid-vowel omissions are the most common forms of vowel omission used to shorten a word. End-vowel omissions involve simply dropping the final letter of the word. Examples of this are: 'ar' for 'are', 'awsm' for 'awesome' and 'coz' for 'because'. The most common end-vowel omissions are: 'hav' for 'have' or 'hv' for 'have'.

The omission of vowels in the middle of a word involves the omission of the vowels in the middle of the word. The most common forms of mid-vowel omission are: 'bt' for 'but', 'dnt' for 'don't', 'hpe' for 'hope', 'hv' for 'have', 'lve' for 'love' and 'nw' for 'now'.

First vowel omission is the shortening that is least used by the participants in this study. The word 'bout' for 'about' is the most frequently used while 'njoy' for 'enjoy' and 'ntertain' for 'entertain' only occurred once.

Vowel sound replacements also form part of this category. Vowels are often omitted and replaced with one letter that represents the sound. A 'y' is often used to replace the 'al' sound in a word. Examples of this are 'nyt', 'tym', and 'lyk'. The letter 'u' is the most popular letter used to replace a vowel sound. 'u' is used to represent the word 'you' in 83 instances in the SMSes that were analysed. 'u' is also used to represent the 'ou' sound in the word 'cousin'. Here the letter 'u' also serves the purpose of indicating an accent stylization. The letters 'ur' are used to represent the words 'your'. 'u' is also used to replace the ʌ sound (i.e. 'cum' and 'awsum'), the 'oo' vowel (i.e. 'gud' and 'luk') and the 'oul' sound (i.e. 'cud' and 'wud'.

- **Contractions**

Words that had been contracted only made up three percent of the overall abbreviations in the SMS text messages. Examples of these contractions are presented in Table 6.15.

Table 6.15 Contractions in SMS language

Form	Example
Contractions	Afrikaans > 'afr' Be > 'b' Birthday > 'bday' See > 'c' Chapter > 'chap' Congratulations > 'congrats' December > 'dec' Fabulous > 'fab' Friday > 'fri' Mafikeng > 'maf' Message > 'msg' are > 'r' Weekend > 'w/e'

Words are often contracted to the shortened form of the word (e.g. 'afr', 'fri', 'congrats' 'maf' and 'msg'). These contractions include the names of places (e.g. 'kdork' for Klerksdorp and 'maf' for Mafikeng). Common words that are often used are also contracted to the shortened form (e.g. 'bday'). Simple words are often contracted to one letter to represent that word. Examples of one letter representing a word are: 'b' for 'be', 'c' for 'see', 'n' for 'and', 'nd' for 'and' and 'r' for 'are'.

- **Clippings**

Clippings is a form of abbreviated writing which sees the last letter of the word purposefully omitted (see Table 2.5). Table 6.16 summarises examples of clippings found in the SMS text messages which were analysed for this study. Only one percent of the abbreviations in this study were clippings.

Table 6.16 Clippings in SMS

Form	Example
g clipping	Coming > 'comin' Doing > 'doin' Getting > 'gettin' Sleeping > 'sleepin' Writing > 'writin'
t clipping	But > 'bu' Just > 'js' or 'jus'
y-clipping replaced with i	Actually > 'actali' Busy > 'busi' Only > 'onli' Really > 'rli' or 'reali'

The most common clipping used in the SMS text messages that were analysed for this study was the g-clipping. Examples of g-clippings include: 'comin', 'doin', 'replyin' and 'writin'. The word 'just' is sometimes abbreviated to 'js' or 'jus' indicating a t-clipping and words that end with 'y' are often clipped with the 'y' being replaced with 'i' (i.e. 'actuali', 'busi' and 'reali'. The purpose of clipping the 'y' does not seem to be related to text reduction, as the word is not abbreviated when the 'i' replaces the 'y'.

6.3.1.2 Acronyms and initialisms

According to Crystal (2008a; 2008b: 41), acronyms and initialisms are the second most noted feature of SMS language (§2.7.1.2), with an entire genre of abbreviated forms being motivated by the ergonomic features of these phrases. A summary of the acronyms found in the SMS text messages in this study is presented in Table 6.17.

Table 6.17 Acronyms and initialisms

Form	Examples
Acronym	Laugh out loud > 'Lol' Oh my word > 'OMW' Oh my god > 'Omg'

An analysis of the SMSes collected from the participants in this study indicated that acronyms and initialisms are not used extensively by these participants when constructing an

SMS (Table 6.17). The reason for this could lie in the fact that this study dealt exclusively with the analysis of SMS language used in SMS text messages, and many of the participants indicated that they communicate more through the medium of the chatroom MXit. Five acronyms were identified in the analysis of the SMS text messages. 'lol' or 'laugh out loud' occurred three times, while 'OMW' or 'Oh my word' and 'OMG' or 'Oh my god' were also indicated. These initialisms are used to replace expostulations (see Table 2.6 in Chapter 2) and were accompanied by the excessive use of punctuation marks. Both the 'OMW' and the 'OMG' were followed by three exclamation marks.

6.3.1.3 Rebuses and alpha-numeric homophones

Rebuses consist of pictures or letters which represent the sound of the word and often comprise alpha-numeric conventions (§2.7.1.3). Table 6.18 summarises the alpha-numeric homophones, rebuses and visual morphemes that were found in the analysis of the SMS text messages in this study. This form of abbreviation accounted for seven percent of all the abbreviations in this study.

Table 6.18 Rebuses and alpha-numeric homophones

Form	Examples
1 for one	One > '1' Someone > 'sum1'
2 for to	Two > '2' Tomorrow > '2mw' or '2mrw' Today > '2dy' or '2day' or '2 day' Tonight > '2night' or '2nyt' Together > '2geda' It to me > 'it2me'
4 for for	For > '4' Forget > '4get' For ever > '4eva'
4 for f	From > '4rm'
4 for fore	Before > 'b4'
8 for ate	Great > 'gr8' Celebration > 'celebr8n' Chocolate > 'chocol8'
Vuvuzela	<====<0>
Visual morphemes	<x> <xx> <Xx> <Xxx>

Numeric representations for letters were prevalent in the SMSes that were analysed for this study. The number '2' was the most prevalent, with the number '4' also being found in a number of SMS text messages. The number represents the word, as in '2' for 'to' and '4' for 'for' or 'fore' (i.e. 'b4'). The letter '8' was used to represent the sound 'ate' at the end of a word (i.e. 'gr8', 'celebr8n' and 'chocol8').

The lack of rebuses in the SMSes that were analysed was noted. The only rebus that was found was that of '====<0' representing a *vuvuzela*. There were also only six visual morphemes identified 'xx' and these represented a kiss at the end of an SMS.

6.3.1.4 Simulation of the spoken word

Words that simulate the spoken word (§2.7.2.1) is an aspect of SMS language that is completely unique (Crystal, 2008b: 49). Two percent of all the words analysed in this study are simulations of the spoken word. Examples of these words which were identified by the analysis of SMS text messages in this study have been presented in Table 6.19.

Table 6.19 Simulation of the spoken word

Form	Examples
Sound simulation	Laughing > 'Haha' or 'hahahahaha' or 'Hehe' Kisses > 'mwah' or 'Mwa' or 'Mwah' Showing disgust > 'Pppph' or 'Pshh!'
Reduplication for emphasis	Gee > 'Geeee' So > 'so0o'
Accent simulation	<Ah cuz!> <duno> <en> <fwendshp> <gna> <Heya> <Ja> <leka!!> <lil> <neh?> <o by da way> <sowi> <Sup bra> <Sup sis> <vewi> <wana> <Wat up>

Sound simulations to indicate laughing were most commonly used in the SMS text messages that were analysed (e.g. 'haha' or 'hehe'). The word 'mwah' was also inserted into seven of the SMSes to indicate the sound of a kiss. Sounds that indicate frustration (e.g. 'pppph' and 'pshh') were found in two of the SMSes.

Reduplication of letters was only used on two occasions (e.g. 'geeee' and 'so0o') and it can be stated that the use of reduplication in SMS text messages does not occur very often in this population.

The simulation of accents was discovered in certain SMS text messages. South Africanisms like 'ja', 'en', 'neh' and 'leka' were used and a slang form of writing to indicate a simulation of

the spoken colloquial nature of SMS were also found (e.g. ‘sup bra’ and ‘sup sis’). The words ‘fwendshp’, ‘vewi’ and ‘sowi’ were used to indicate that the speaker was trying to sound contrite by using a small child’s manner of speaking in one of the SMS text messages.

6.3.1.5 Capitalization

The use of capitalization is a strongly marked feature of SMS language (§2.7.2.2) and can be used as a paralinguistic indicator of pitch or it can be used to add emphasis to a message. Table 6.20 highlights the use or lack of capitalization that was found in an analysis of the SMS text messages in this study.

Table 6.20 Capitalization

Form	Examples
First letter capitalization omission	<did> <good> <hi><hpe> <hope> <how> <im> <try>
In-text capitalisation	<l wAs wriTin al tHe naMes Of da pPl in my lYf wiT peNcil bt wEn i gt 2 Ur naMe i did iT in peRmANet maRker cOz i wNt u in my lyf 4eva. K miZz jO!> <GUDMORNING MA DEAR FRND. HW WS UR NITE? MYN WS FYN. DNT WORRIE GOD Z IN CONTROL. JUST BELIEVE DAT HE Z ABLE. HAVE A BLESSED DAY. GOD LOVES U MUCH. HE HS BIG PLNS 4 U>
Proper noun	<conrad> <gav> <geoffreys> <potch>
Pronoun i	<i> <i’d> <il> <im> <iv>

The SMS text messages in this study were marked by their lack of capitalization rather than by the unique use of capitalization. The most common form of omission with regard to capitalization is the letter ‘I’. In forty-two of the seventy eight SMS text messages that were analysed for this study, the letter ‘I’ was used with a lower case. Variations of the use of ‘i’ included: ‘i’, ‘i’d’, ‘il’, ‘im’ and ‘iv’. Proper nouns were also written without the first letter being capitalized. There were also examples of the lack of capitalization for the first word of a sentence and the use of capital letters for pronouns.

Two SMS text messages displayed the use of in-text capitalization (see Table 6.20), but this is not a pattern that was repeated in many of the text messages that were analysed. This points to a sense of play or novelty displayed by the individual writer of the message. Another text message used capital letters throughout the entire text message. As indicated before, this points to the personal preference of the individual writer and can not be seen as

a characteristic of these participants.

6.3.1.6 Punctuation

Punctuation is often used minimalistically or not at all (§2.7.2.3), or it is used in unusual combinations for emphasis or to express attitude. Table 6.21 indicates the omissions of punctuation and the various forms of punctuation that were used in the SMS text messages in this study.

Table 6.21 Punctuation

Form	Examples
Contraction	<Cant> < cudnt> <didnt> <DNT> <dnt><havnt> <hvnt> <il> <im> <iv> <its> <Thats> <ull> <wont>
Possession singular	<geoffreys>
Asterisk	*
Ellipsis dots	
Exclamation marks	!! !!! !!!! !!!!
Forward slash	<w/e?>
Incorrect punctuation	<Wat up.>
Plus sign	+
Question mark	?? ??¿¿
Combinations	<Hey...do u sEE that liTLE **STAR**By the horizon boUNcing uP AND dWn??¿¿...wel that\$ (=ME=) Waving my ASS OFF to saY *GOODNYT* and sLEEP TWOIT*!! :) mWAh!....> !?

The most common omission of punctuation is to be found when words are contracted and the participants fail to insert the apostrophe to indicate the contraction of a word. Only one omission of punctuation (e.g. the question mark) could be found regarding a question (e.g. wat up). Rather, an analysis of the SMS text messages indicated that the participants in this study use ellipsis to indicate a pause in the conversation and participants exaggerate the use of the exclamation mark for emphasis.

Unusual combinations of capitalization and punctuation occurred in one SMS, which is indicative of the personal style and playfulness of the participant in relation to SMS language (e.g. <Hey...do u sEE that liTLE **STAR** By the horizon boUNcing uP AND dWn??¿¿...wel that\$ (=ME=) Waving my ASS OFF to saY *GOODNYT* and sLEEP TWOIT*!! :) mWAh!....>).

This SMS text message has the qualities of a rebus as the words try to mimic the actions in what the writer is saying.

6.3.1.7 Emoticons

Emoticons were born out of the need to communicate emotion in the conversational genre of CMC (§2.7.3). Table 6.22 features the examples of emoticons found in the analysis of the SMS text messages in this study.

Table 6.22 Emoticons

Form	Examples
Colon set	:) :):) :-) :-(:O :-]
Semi-colon set	;))
Hyphen set	-)
Equals set	=) =D =P (=ME=)
Letter set	XD XO
Asterisk set	*(' ,) ***STAR**

The most common form of the use of emoticons in the SMS text messages were the use of the colon set and the equals set. In total, only 30 instances of emoticons were found in the seventy-eight SMSes that were analysed.

6.3.1.8 Novelties in SMS

According to the review of literature, SMS text messages display unique features (§2.8). The use of extended initialisms, the use of sequences using shortened and full words, logograms and non-standard spellings are all salient features of SMS language. Other than the use of non-standard spellings (§2.7.1), the SMS text messages in this study do not display any of these unique features. Rather, the uniqueness displayed in certain SMSes (e.g. ~*~*Luking

forwrd2 seing u nxt week fridy..GudNyt~*~*) point to the use of personal style by the writer of the specific SMS text message (§2.9), accent stylizations (e.g. <Fwndz>) and the playful use of language (e.g. 'boUNcing uP AND dWn', 'peRmANet maRker', 'Kdork' and 'n0w' or 's0ry').

6.3.1.9 Conclusion to the analysis of the SMS text messages

In order to answer the **research questions: 1) *What is the nature of SMS?*** and **2) *Does SMS language lead to changes in spelling and if so, what is the nature of the changes in spelling?*** an analysis of 78 SMS text messages which comprised 1933 words was undertaken. The most common changes in spelling that were found in the analysis of SMS text messages was the use of abbreviations: in particular the shortening of words and vowel omissions. The participants also used contractions, clippings and alpha-numeric homophones to a lesser degree. There was also evidence of the simulation of the spoken word in some of the SMS text messages. It was noted that the majority of the SMS text messages in this study did not use capitalization at all. There was also a lack of the correct use of punctuation in these SMS text messages, although punctuation (i.e. ellipsis dots) was used for effect or to show emotion. There was also evidence of the use of emoticons, particularly the use of the colon set smiley faces, with half of the SMS text messages showing evidence of an emoticon. The use of personal style was also evident in some of the SMS text messages, with the use of in-text capitalisation and the creative use of punctuation. The element which stands at odds with the review of literature though, is the use of acronyms and initialisms. There was very little evidence of acronyms or initialisms in the SMS text messages which were analysed for this study.

The next section of the qualitative analysis dealt with the analysis of the interviews which had been transcribed.

6.3.2 Self-regulation in SMS

In order to answer research question 6: *Is there a relationship between self-regulation and SMS and if such a relationship exists, what is the nature of this relationship?* the analysis of the data allowed the researcher to explain the specific self-regulatory strategies that had been identified in the semi-structured interviews (§5.4.2.2.1 and Table 5.22). A review of literature also (§3.5) allowed the researcher to select certain self-regulatory strategies that were of interest for analysis.

The self-regulatory strategies that were analysed in the quantitative section of this study were: goal setting, strategic planning, self-recording, self-evaluation and self-reaction. These

strategies are discussed here. Direct quotes from the interviews are highlighted in *italics*. Quotes that were gleaned from the transcribed documents (see Appendix 8: compact disc) were referenced with line numbers, and placed between brackets (e.g. 16:1 with 16 indicating the document number and 1 indicating the line number within that document).

6.3.2.1 Goal setting

The participants' responses regarding goal setting in SMS were analysed in order to determine if differences between goal setting strategies manifested themselves in differing contexts (i.e. informal and formal) for SMS. The goal setting responses dealt with setting a specific goal for an SMS, thinking about the content of an SMS before beginning the writing process and including taking time to think about the goal or content before writing an SMS.

6.3.2.1.1 Setting a specific goal

The following statements made by high self-regulators indicate that generally speaking, higher self-regulators tend to set specific goals for an SMS whether the context is formal or not.

I normally think exactly what it is I want and what I want to ask and then I base the whole SMS around that. But I won't just say 'Hi give me this' Just 'hi how are you how is everything', Uhm, yes, to put across the message and, ja, not to make the sms too long, as briefly as possible, because I don't want to spend too much money to spend an sms (16:1-4).

Participants who indicated that they do not set goals for themselves stated that the reason for this is because they 'write like they speak'.

- *Ja, it's like writing like you speak (28:47).*
- *It's like speaking to someone (47:67).*
- *Ja, I write the way I speak basically (44:24).*

From an analysis of the interviews it became evident that the high self-regulators also prefer to set goals for themselves when the context of the SMS is more formal. When the scenario involved sending an SMS to an older family member (e.g. a grandparent), the high self-regulators stated that the goal of the SMS would be very specific:

- *So that they fully understand, the language is a big thing, because with my grandmother, she can see the date and the time and stuff, she has to understand what I am saying to her (23:2).*

- *Venue, venue and giving the details to them (20:3-4).*
- *Uhm, to communicate the message formally. Ja. And ja, to keep it brief, doesn't have to be too long...so they actually understand and things like that (17:2-4).*

Specific goal setting statements related to a formal scenario involving high self-regulators and an English teacher included:

- *And obviously use punctuation and everything, because it is my English teacher (18:4).*
- *To answer the questions in the most correct possible way (giggle) (24:1).*
- *Yes I would, I would make sure to include words Sir, when I SMS teachers I always make sure the word Sir is there so that they know it's a form of respect and also I would also tend to use bigger words than normal (3:1) .*
- *So that I can give the correct information, and I can, so that he can understand it. I would probably, because it's an English teacher, I would probably spend a bit more time on my language and my composure and sentence rules, but not to a certain extent. Not to an extent as if I would be working for him though (27:2).*

The difference in the use of a specific goal setting strategy is more marked with regard to the low self-regulators. Low self-regulators tended not to set specific goals for themselves when writing informal SMSes. When a more formal scenario was sketched for these participants, the low self-regulators indicated that they would set a specific goal for an SMS to a grandparent or a teacher:

- *I would say like to my grandparents yes, like to make sure that I'll, like, give specific details...I'll type it up properly, like times, so they read it once and understand it, cause they can't really read...[laughing] cell phone language (51:3).*
- *Yes, Proper English, 'cause grammar, and punctuation and full stops (52:1-2) .*
- *Because it's a English teacher (21:2).*

Reasons given by low-self-regulators for not setting a specific goal for an informal SMS included:

- *I just type and whatever I need to say I just write it and type it in (44:21).*
- *Uh, I would normally phone in this situation (19:3).*

When the scenario was sketched for the composition of an SMS to a family member one of the participants indicated that he would not set a goal for this SMS because he would just prefer to keep it 'straight forward and simple':

No, I would basically just say we are having a family reunion, this is the date, this is the time, and the place. Ja, straightforward and simple (45:1).

Only one participant indicated that he would not set a goal for the SMS he would compose for his teacher when he said:

Ja, but not necessarily, because with my English teacher it's, like, a bit more different, because like we, he knows me (30:1).

6.3.2.1.2 Thinking about the content of the SMS

The participants who displayed higher levels of self-regulation within the context of SMS, tended to think about the content of their SMS's before beginning the writing process. Statements regarding high self-regulation in informal contexts included:

- *Yes. So if we're speaking about something that I do have to think about before I reply (16:3).*
- *Uhm, firstly I think about if I'm saying something, how they're gonna respond to that and if it's appropriate for me to say it or not and then I can send it, because, once you send it, you can never like take it back (28:5-7).*
- *Well, it depends on who I am sending the message to, so if it is my best friend and I know her well I know the reaction that my SMS is going to spark in her, so, ja (7:6).*
- *Yes, when I receive an SMS, there's usually questions, and then what I do is, I start answering the last question first and then I go back to the SMS and see what were the other questions and then I answer the questions (1:25).*

The high self-regulator who indicated that she would not think about the content before she wrote an SMS stated:

Not necessarily, because I usually just know exactly, like I say, we usually do exactly the same thing, so in that situation, it would be, like, I would know what I was going to say immediately (1:5).

When a more formal scenario was sketched, the high self-regulators indicated that they would think about the content of their SMS's when sending a text message to a grandparent and a teacher. Examples of the statements relating to grandparents were:

- *I would first (17:6).*
- *Definitely (22:5).*
- *I would say, I'd just tell her that, uh, we have a reunion at home, so you must come, uhm, at about nine o'clock Tuesday afternoon (48:4).*

While statements regarding the use of this goal setting skill for an SMS being sent to a teacher included:

- *Ja I would first greet, establish respect, answer the question (3:12).*
- *Yes. So if we're speaking about something that I do have to think about before I reply... (16:9).*
- *I would just make sure that the time and date is correct but otherwise, I wouldn't like go and sit down and plan it or something or do it exactly like this because it is for them (45:11).*

The low self-regulators also indicated that they think about the content of their informal SMS stated:

- *Sort of before the time, because nowadays like, like my friends if I say how are you, then they'll just say good, so I know they're going to say that, so I think of something before the time to say to them... (40:35).*
- *Yes as I'm thinking about it I change it as well (44:3).*

One of the low self-regulators who did not think about the content of her SMS before writing it stated that she did not think about the content before she began writing, but rather thought about it while she was writing:

No, while I'm typing I'll just like think of what I'm going to say (50:3).

This links with the idea of 'writing like you speak' where the conversational nature of SMS texting requires the participants to think while they are constructing their messages, as the response time is expected to be quick.

When sending more formal text messages to grandparents or teachers the participants with low self-regulation indicated that they would think about the content of the SMS before beginning to write. Statements to this effect include how they would think about the content of an SMS for a grandparent and an English teacher:

- *I would say, I'd just tell her that, uh, we have a reunion at home, so you must come, uhm, at about nine o'clock Tuesday afternoon (48:4).*
- *Not necessary work out, like to make sure that I have, no, it's two o'clock, it's at this venue, they must wear this (51:5).*
- *Uhm, how will we get transport, things like that (15:7).*
- *No, but I would obviously think about the question and then relay that into an answer but I wouldn't like say I have to change the whole style of writing because it is the English teacher, because he knows the way I write or whatever, so I would do it the way I speak and all that type of stuff (46:2).*

6.3.2.1.3 Taking time to compose an SMS

Most of the participants, whether they were high self-regulators or low self-regulators indicated that they would 'rush' their SMS's. Examples of these statements for high self-regulators included:

- *I rush (28:12).*
- *I would rush it because I would have planned it in my head already (11:4).*
- *I do it really quickly because before I start texting I already know what it is I am going to say (17:4).*

The low self-regulators indicated the same:

- *I normally rush it (19:15).*
- *I really rush my smses, so when you just type fast and you send it, just like that. Like, 'cause you like wanna tell the person the reply quickly.....so they can reply back (50:17-21).*

Although the low self-regulators indicated that they would in all probability not take their time to plan an SMS, there were high self-regulators who indicated that they would take their time when composing an informal SMS:

I take my time. No. Then I reread it over and over again (16:11-12).

When high self-regulators were asked to indicate if they would take their time when composing a more formal SMS, most of the high self-regulators indicated that they would take their time if they had to compose an SMS to a grandparent or a teacher:

- *I would type it slowly (23:5).*
- *Because I think I would check it more than once to see, like things like punctuation and spelling and everything and because it's not abbreviated or anything like that. So it, it takes more time (29:5).*
- *I don't know actually, probably take my time, you know because you don't want him to judge you (43:3).*

One of the participants with low self-regulation indicated that when composing an SMS to a teacher, he would 'take a bit more time':

I wouldn't say that I would take my time, but I wouldn't do it so quickly so as when I didn't have time. Ja I would take a little bit longer, so that the whole thing is sort of right, and I don't say the wrong thing or something like that (46:4-5).

High and low self-regulators indicated that they would set specific goals for formal contexts. The reasons given for setting these specific goals include: ensuring that specific details are included in the SMS, to communicate formally and to show the necessary respect. These participants also indicated that they would think about the content of the SMS more for formal contexts. The reasons given include: thinking how the other person is going to respond and including important details in the SMS. Although most participants indicated that they do not take time to plan or write an SMS, the high self-regulators indicated that they would take time to think about and compose an SMS in a more formal context. The reasons given for setting a specific goal, for thinking about the content and for taking time to compose an SMS were fear of judgement and the fact that deliberate thought concerning the content of the SMS, required extra time.

6.3.2.2 Strategic planning

According to Zimmerman (2000a:17), when a learner begins strategic planning, the first thing to do would be to select methods that are appropriate for the task at hand and the setting, as well as appropriate methods for attaining the goals set. The statements made by participants regarding planning strategies were divided into the following sub-categories: creating a framework for an SMS, asking questions to focus attention on writing, referring to the guidelines in a cellular telephone manual and modeling.

6.3.2.2.1 Framework for SMS text messages

Half of the all the participants (n=7) indicated that they would work out a framework for an informal SMS before they started writing. This frequency increased when the context of the SMS became more formal, with participants indicating that they would indeed plan or structure their SMSes for formal contexts.

A reason given by one of the high self-regulators for indeed working out a framework for an informal SMS was:

Yes, I always tend to worry that someone won't understand that someone won't understand, it is just to forward I tend to structure it (22:37).

While the reasons given by some of the participants with high self-regulation for not working out a framework for an informal SMS included:

- *If it's a casual sms, I mean, I just go with the flow (16:100).*
- *No, I just start writing (1:24).*

When confronted with a more formal scenario, the participants indicated that they would work out a framework for the SMS that they were planning to send. High and low self-regulation statements included indications that the structure of the SMS was important:

- *Yes, I would start with the usual 'Hi, how are you?' and then I would give the facts and then I would say hope to see you there, thanks (2:12).*
- *It would have a proper structure thing so ja, even if it was one sentence each, just have it there (43:23).*

Other high self-regulators indicated that structure was not important in an SMS:

- *No not for SMS's (10:95).*
- *It doesn't really help me. I write my speech or my essay or whatever, and then only do I do my mind map (10:91).*

6.3.2.2.2 Ask questions to focus meaning

Participants were asked to indicate if they used the strategic planning strategy of 'asking questions to help focus meaning' in an SMS. All the participants that displayed high self-regulation indicated that they would ask themselves questions to focus the meaning in an

SMS, in both informal contexts and more formal contexts. High self-regulatory statements relating to the construction of an SMS text message in informal contexts included:

- *It depends on what I am trying to say in the message. If I am trying to make a joke or something, then yes, I am going to go back to try to understand if this really makes sense, is it funny in a sense, so if it is not funny, ja, whatever (10:28).*
- *Is there anything that this person might want to know that I'm like not, that I haven't included, or that I'm not including in my message and then, ja (28:95).*
- *I have to ask myself, am I writing this to suit my needs or her needs, will she understand me? (10:101).*
- *Ja I do, it depends I ask myself questions on what questions they asked me and how I am going to reply in a certain way, do I want to sound funny, do I want to sound quirky, sound clever or sarcastic (1:28).*

The majority of the high self-regulators indicated that for an SMS sent informally, the main motivation behind asking questions to focus the meaning in the SMS were to determine if the SMS 'sounded' right or to address the needs of the specific audience of the SMS.

Statements related to why high self-regulators asked themselves questions to focus meaning in formal SMSes include the following:

- *Like, more of, will they understand what I'm saying? (17:18).*
- *By asking myself questions and making sure that she will understand what I am trying to say (11:22).*

In relation to sending an SMS to a teacher, the following statements indicated that the participants do asked themselves questions to focus the meaning in a formal SMS:

- *Uhm, if I haven't left anything out, basically. And ja, if there's anything else that I need to cover that he might ask. (30:23).*
- *Yes, yes trying to think of more reasons, fixing this and fixing that (24:17).*

A participant with low self-regulation indicated that he would also ask questions to help focus the meaning in an informal SMS. The statement related to the use of this strategy was:

I'd ask myself did I write the, is that the correct date (19:74).

Only one participant that displayed low self-regulatory skills indicated that he would ask himself questions to help focus his writing when he sent an SMS to his teacher:

Uhm, probably for that. Probably [unclear] or probably more (27:24).

The participants that displayed low self-regulatory skills generally did not ask themselves questions regarding focussing the meaning in a formal SMS:

- *No, not really (44:31).*
- *Then I just, I don't think (47:68).*

6.3.2.2.3 Refer to guidelines for SMS

The participants were asked if they would consult the cellular telephone manual in order to determine how to construct an SMS. Only two participants, both of whom were high self-regulators, indicated that they would consult the guidelines laid down in the manual:

If I really needed to know something that no one around me could help me with, then I'd go and check that (28:66).

Most of the responses from the high and low self-regulators indicated that the participants would not read the manual. Responses from the high self-regulators included:

- *No, the manual, I hate it, I hate it (10:63).*
- *Not an SMS no (22:38).*

The low self-regulators indicated much the same:

- *I don't look at manuals (25:70).*

High and low self-regulatory participants did indicate though, that they would consult the manual for reasons other than how to construct an SMS:

- *I have used it for like my charger the safety precautions (22:39).*
- *if you quickly need to go check the phone numbers (28:69).*
- *I check the one thing that I check, uhm, is just how to take the battery out, how long to charge it and the sim card (13:73-74).*

6.3.2.2.4 Peer assistance or modeling

Although participants in this study indicated that it was not common to model their SMS writing behaviours on other models, some participants with high and low self-regulation indicated that they did model their SMS behaviours. Statements like:

- *Yes, I have, a lot of times (19:68).*
- *Ja, my brother showed me most of the stuff ...and ask him to send me a few messages, like random smses to see how he types it (40:56-57).*
- *Yes, my sisters (4:44) indicate that participants are willing to model their SMS behaviours on other models' successes.*

6.3.2.3 Self-recording

Self-recording may not be a self-regulatory strategy which one would usually equate with the construction of a text message. SMS text construction is done on a cellular telephone and is usually completed in a rush, thus making the use of the strategy of self-recording seem improbable. The questions in this section of the interview process aimed to determine which the self-recording strategies were used when the participants read an SMS. 'Keeping track of difficult words or concepts', ensuring that the aim of the SMS has been reached and 'recording trends or fashions in writing' may be an adaptation of the conventional self-recording practices in writing. Through a participant's observation of covert thought patterns and emotional reactions, as well as overt performance, a participant may begin to notice recurrent patterns in functioning. If any regularities in a pattern can be discerned, these repetitions in behaviour can be used to identify influential features of a learner's environment (Zimmerman, 2000a: 20). For those learners who can alter their behaviour or modify their environment, these insights can lead to corrective courses of action. An example of self-recording is when a learner keeps a journal of his/her writing experiences or makes lists of words or concepts that he/she does not understand or makes mental notes of words that are not understood in an SMS.

6.3.2.3.1 Keeping track of words not understood

The participants who were interviewed indicated that they would keep track of words or concepts that they did not understand in an SMS. High self-regulation statements included:

- *But when a word does come along, I spend half an hour thinking about what it could mean (13:84).*
- *And I don't understand it? Yes I do because I am very sure that later on I am going to be using the exact same concept that I have gotten (7:48).*

While participants with low self-regulation indicated that they do keep track of words that they do not understand with statements like:

- *What the abbreviations mean, ja. (40:65).*
- *Because if I don't understand the words, I won't understand the question, so (27:22).*

6.3.2.3.2 Keeping track of what must be communicated

Half of the participants that were interviewed indicated that they checked the SMS to keep track of what must be communicated. Statements regarding checking the SMS for high self-regulators included:

- *Like, ja, what I'm gonna say and then when and then obviously go back and see if it's in the order that I wanted (28:83).*
- *Yes, sometimes I wouldn't like unnecessary information, only the stuff that a normal person, like if I'm speaking to the person, you always just try and like say, what time is it? Are we going to be there? (40:66).*

Within the context of sending a formal SMS, participants with high self-regulation indicated that they would also keep track of what must be communicated by checking over the SMS. Statements with regard to formal SMSes included:

- *Yes, just to make sure that I don't leave anything out (2:10).*
- *Only with my parents, um, if I am asking for a few things or saying a few things I make sure that every point is mentioned (22:25).*

A participant with low self-regulation also indicated that he would keep track of what he wanted to communicate when he said:

I'd make sure, I'd always keep a mental note in my head to say like a little checklist, saying that okay, I haven't done this yet, I must still do this, ja (14:19-20).

This particular participant (14:19-20) also indicated that he would employ the same strategy when writing a formal SMS to his teacher:

Ja, I'd make sure that, you know, I definitely said yes, I'm coming. I'd definitely make sure that I asked her, you know, how are we gonna get there, what time is it (15:19).

6.3.2.3.3 Ensure that the goal has been reached

All the high self-regulators who were interviewed regarding the self-recording strategy of 'ensuring that the goal of the SMS has been reached' indicated that they always ensured that the goal of the SMS had been reached. Statements made by the participants with high self-regulation included:

- *I usually do to make sure that the other person understands it (1:22).*
- *'cause before I've sent it, because my aim is to get the, the correct information of a person (25:37).*
- *What you have actually done? You know in some cases you try to say something, you are planning it out, lets say to a boyfriend or whatever, trying to tell them kak, and then you plan it out, you plan it out, you plan it out, and then when you actually write it and then, in the end, you see that this is not what I wanted to say. I wanted to bring across this message, and not that message (10:24).*

The low self-regulators also indicated that they checked that the goal of the SMS had been met, but to a lesser extent than to the high self-regulators. The following statement shows how a participant with low levels of self-regulation ensured that the goal of the SMS was met:

- *I do, I always think about what I'm gonna say, what my message has to be about, what I have to make clear to the person (13:45).*
- *Ja, definitely, uhm, but, although I'm, because I, I know what I wanna talk about, that's not as important to me, so I look over it maybe once, twice in sms, but the spelling is more, I check over that more frequently (13:125).*

6.3.2.3.4 Trends and fashions in SMS writing

Both high self-regulation and low self-regulation participants indicated that they kept track of the trends and fashions in writing that occur in SMS. High self-regulation statements were:

- *Ja, I do, I do, certain, um, how to contract words, sometimes I see ones that are even easier or shorter than how I write it (1:20).*
- *I use that I just say 'Mwa' and then xoxo, I use that, and I was actually telling my aunts the other day because it was one of my aunts birthdays and my cousin wrote xoxo and she was 'Xo! Xo!' and I was like Nooo! (10:75).*
- *Then I just started adapting like, ja (28:87).*
- *Well, on Mxit, what happened was I was asking a friend of mine 'what are you doing?' and he said LIB and then I asked him 'ok what is that?' because I didn't understand, and it's 'laying in bed' so I use that for quickly (7:56).*

One of the participants with high self-regulation indicated that she was opposed to copying the trends but that she did take note of specific fashions in writing:

No I don't but for example most people who use a lot of MXit, when they SMS you they will have the abbreviations and everything, so I just familiarise myself with it so that I know what you're asking (22:28).

A participant with low self-regulation indicated that he does not follow the trends in SMS writing but rather prefers to use his own style:

No, I use my own style of writing (44:23).

This was reiterated by another participant with low self-regulation:

It's quicker. Okay, I, I suppose I did get it from other people, but I, I wouldn't change, 'cause I already got a, already got a writing style (25:82).

6.3.2.4 Self-evaluation

Within the self-reflection phase, self-evaluation statements were analysed by determining whether the participants evaluated their SMS text messages after they had written them, but before these messages were sent. Statements related to the evaluation of the content of an SMS and the meaning generated in an SMS were categorised for informal and formal SMSes.

6.3.2.4.1 Asking questions regarding the content of the SMS

With regard to 'asking questions regarding the content of an SMS', high self-regulators indicated that they would employ this strategy for an informal SMS:

- *Yes, before I sent it, because most of the time it is easier to when you read it out loud and it makes sense, more sense than when you are just typing and you are reading it in your mind. So when you read it out loud, you actually hear what you are saying, so um, ja (43:26).*
- *Usually, depending on who the receiver is. Also, with different friends, with my close circle of friends, we have the same kind of SMS language, whereas friends in other schools and towns, they might have different languages, like SMS*

languages, so things like how I contract it, they might not necessarily understand. So I think about things like if my friend is English or Afrikaans (1:8).

Low self-regulators also indicated that they would use this strategy for informal SMSes:

Like the words like, 'cause I got this one friend, she smses me, but I cannot make out any of her language, but like I would just like simple words that is, like, understandable (50:24).

When writing formal SMS's participants with high self-regulation also ask themselves questions regarding the content of the SMS:

- *The time, the place, the whose house, that's the place, ja that sorts of questions, transportation for them if they don't have any (8:18).*
- *Yes because they don't really understand you know, modern SMS text so I would make sure that the words are completely understandable and also in the same sense, if I had to reply to them two minutes later saying 'sorry I meant this' then they really wouldn't understand and would think that it was a new one, so I know that they would not be able to understand that (2:4).*
- *Yes I would but taking my specific English teacher into consideration he knows all kind of the modern SMS text thing so I wouldn't reread it as rigorously as my grandparents, because I know that if I used a shorter word he would understand it (3:4).*

Participants with low SMS indicated that they do not ask themselves questions regarding the content of an SMS, regardless of the context.

6.3.2.4.2 Asking questions regarding meaning in the SMS

Not only did high self-regulators indicate that they initiate the self-reflection sub-strategy of self-evaluation with regard to asking themselves questions regarding the content of an SMS, they also indicated that they asked themselves questions in order to evaluate the meaning that had been generated in the SMS that they had written. Statements to this effect include:

- *Would she understand the questions that I am asking? (4:8).*
- *A little bit, but not as much as when I write sms, because I'm gonna be writing everything out in full (14:7).*

High self-regulators also indicated that they would reflect on the meaning in a formal SMS written to a family member:

Just, just to make sure that she gets what I'm saying (14:33).

The high self-regulators who were interviewed indicated that they would ask themselves questions regarding the meaning of the SMS if they were to send a message to their teacher.

One of the participants with high self-regulation indicated that the content of the informal SMS is more important than checking that the SMS makes sense:

That doesn't bother me in the least it is the content that bothers me. Punctuation and stuff, if I missed out a comma, I wouldn't go back (10:86).

Low self-regulators also indicated that they would use self-reflection in order to check the meaning of a formal SMS:

- *And, ja, I'd make sure that I, I'm, I'm sure she wouldn't have a problem understanding (15:3).*
- *He doesn't get upset, but like if I'm telling him to please bring my soccer boots or something like that, I wanna make sure that he understands exactly what he has to bring (13:54).*
- *Uhm, I'd also keep myself conscious and write everything out in full, make sure that she understands it, you know, send her also in that message write, do you understand, uhm, uhm, must I call you, stuff like that, but I make sure that everything is that she'll understand everything (14:4).*

One low self-regulator indicated that he would not check the meaning of a formal SMS which he had written to a teacher:

The way I feel I mean he marks all the work or whatever, so he understands the way I write (46:7).

6.3.2.4.3 Check or reread SMS

All the high self-regulated participants who were interviewed indicated that they would reread their SMSes, whether they were informal or not. Their responses included rereading the SMS to check the spelling of the abbreviations:

- *Because, ja, I'm checking the spelling of the abbreviation, not the word (13:44).*

- *Oh yes, you have to because sends the wrong message if you do (10:87).*
- *Uhm, because sometimes abbreviations have like two meanings (28:36).*
- *Yes because it would be difficult for the other person to make sense or interpret what I am trying to say (7:66).*

One participant even indicated that she would use her Blackberry spell check when she re-read a formal SMS sent to a teacher:

No, no, I would and also I would use the Blackberry spell check (3:10).

High self-regulators also indicated that they would reread their formal SMSes to check for mistakes and meaning:

- *To make sure I didn't make any mistakes (16:13).*
- *Spelling, ja, but not necessarily punctuation (28:30).*
- *Ja I would make sure that she could understand, what should I say, how should I phrase my sentence (11:6).*
- *Yes, once I'm done with the SMS with the sentence then I look to see if there are any mistakes (7:83).*
- *Spelling mistakes most definitely, that I didn't abbreviate because I am so used to abbreviating, so now I am writing this one message in quite a while and I have to write out everything in full so I would obviously go back (11:13).*

One of the high self-regulators even indicated that she would save an SMS to reread later, in order to ensure that the SMS was correct:

And I text half of the message then I just put my phone away and then I'll come back to it later (16:95).

The low self-regulators who were interviewed indicated that they would reread both an informal or formal SMS:

- *And then think about my next topic, write it out, go back, look at it, make sure that everything is correct (13:14).*
- *No, I reread it and then send it (19:36).*
- *And then like exclamation mark and then I start to talk about what I have to say and then I'll finish a sentence, put a smiley face. Finish another one, put an exclamation mark, finish the next sentence, put dot, dot, dot, then read it. Once*

I'm done reading, make sure that everything is all right. Read the other person's message again, before I send, especially if it's a long one (13:144).

When composing a formal SMS to a grandparent the following statements regarding the rereading of an SMS were made:

- *I would just check for spelling I wouldn't check for and like commas and stuff (51:10).*
- *Uhm, punctuation I use a little bit more, like if I had to speak to my mom or my gran, uhm, so ja (14:24).*

Similar statements were indicated with regards to sending a formal SMS to a teacher:

Because, uhm, I don't know, school is important (49:10).

Some of the participants with low self-regulation who were interviewed indicated that they would not ever reread their informal and formal SMSes:

- *But I don't it, just happens that I see it's a mistake (47:63).*
- *No, if I'm in a rush I just type it and send it, I don't look over it or change it (44:11).*

6.3.2.4.4 Idea of how SMS will be understood

All of the participants in this study indicated that when they wrote an informal SMS, they were generally well understood. High self-regulatory statements included the following:

- *No, I just use what other people use. If you are going to write out the full word, then I am also going to write back in the full for you. But if you abbreviate and use certain words, then I am also going to do that because then I can see that you will understand what I am going to say (10:98).*
- *They generally get what I'm saying (16:36).*
- *Ok, I would just go into my SMS's and just start typing 'Hey Friend', I don't even say friend, ok, 'hey friend we have been invited to this party' I don't even write it out in full, I use abbreviations and most of the time they understand me, Ja they understand me even if it doesn't make sense, they know what I am trying to say (10:3-4).*

- *With my best friend, yes, because we SMS a lot, so we have almost got a sense of if you don't understand it, you can make it out, you figure it out, we are used to that (1:10).*

Low self-regulatory statements included:

- *'cause they use the same language (19:33).*
- *But everyone knows what you're saying (13:28).*

High self-regulators indicated that SMSes sent to a grandparent should be understood if everything was written out in full:

Yes, if I am writing everything out in full (11:8).

While participants with high self-regulation indicated that their SMS text messages to their teacher would be understood:

- *Ja, if I write out everything in full like I am supposed to write in class then yes (43:7).*
- *Yes, I, I think he would (18:4).*

Low self-regulators indicated that if they were to send an SMS to their teacher, it would be understood by the teacher:

- *Yes, definitely ...especially if I use the correct spelling and punctuation (15:9-10).*
- *I would, but I think generally, the English teacher I've got now, maybe, probably would understand (27:7).*

6.3.2.5 Self-reaction

Self-reactions refer to the various reactions such as self-praise, self-criticism, adaptive strategy use, goal adaptation and goal persistence (Schunk *et al.* 2010: 156; Zito *et al.* 2007: 90). The adaptive strategies used by participants when constructing an SMS are: changing the style and manner in which an SMS is written, rescheduling time, asking for assistance and figuring it out.

6.3.2.5.1 Change the style of the SMS

High self-regulators and low self-regulators indicated that they would change the style of an informal SMS in order to address the needs of the person whom they were addressing. Statements related to this change include:

- *Uh, it depends on who the person is (19:45).*
- *Uh, like the one person for have I'll maybe write hv and then for the other person I write the whole word out (19:46).*

The greatest changes regarding changing the style of an SMS manifested themselves in the manner in which the participants changed their style when the context of the SMS was more formal. Participants with high self-regulation and participants with low self-regulation indicated that they would change the style of a formal SMS that was sent to a grandparent or a teacher. Statements relating to this strategy include the following:

- *Well the relationship that I have with my friend and with my grandparent or parent, that would be different so I wouldn't be as informal I would actually have to be respectful and I would stop using SMS language I would actually write proper English (7:37).*
- *I would change my style for my grandmother (11:17).*
- *Uhm, it do, it would be, okay, like in between, like semi, semi-formal (26:6).*
- *I think it would be more formal (20:7).*
- *Uhm, I think it just for me, it's a little bit maybe more polite (14:25).*

One of the participants with high self-regulation indicated that she would not change her style of writing to a more formal one, but this motivation was indicated by the nature of her relationship with her grandmother:

No not really, my relationship with her is not really formal, we just talk like I would talk to my mom (10:50).

Statements also indicated that the participants would change the style of writing if they were communicating with a teacher:

- *Not my parents, but I would change for my grandparents and English Teacher because of the sense of I don't want to be classified under that stereotype as just another teenager who can't spell, so I always try to make it show that I can spell properly when I sent to other adults (1:43).*
- *Uhm, because it's like in, when I'm having a conversation face to face with a teacher or someone, it is a bit more formal than it is with my friends (9:7).*

- *Yes it would, regardless of the relationship that I have with my English teacher, it would because it would have to be more respectful (9:4).*
- *Ja way more formal than with my friend (8:5).*
- *Uhm, okay. If I had to say yes, I would be coming, I'd just say, very formal (15:13).*
- *But for him I think, [stutters] for actually any teacher or any person I work for, because of the respect factor (27:15).*

6.3.2.5.2 Change the way the SMS is written

The participants indicated that they would change the style of their writing in a formal context. This implied that they would change the manner in which they wrote an SMS. Participants with high and low self-regulation in SMS indicated that they would change the way they wrote an informal SMS if they realised that the person who was about to receive the SMS text message, might not understand what they had written. Statements included:

- *No, just change the parts that I feel they wouldn't understand (16:61).*
- *Ja, I would rewrite it and send it to them again (40:13).*

All the participants with high self-regulation (n=7) and with low self-regulation (n=7) indicated that they would change the way they wrote an SMS to a grandparent:

- *So, to make it clear to him, I make sure that I've spelt everything (13:53).*
- *I'd use less, uhm, abbreviations (20:6),*
- *Then I would, I would obviously maybe fix it for my grandparents, but I won't go and like I would go for an essay or for a writing piece (26:26).*
- *To my mom I have to write out the full thing because then she could call back and say 'what are you trying to say?' So instead of her doing that, I would rather write out the full thing. So as I said, 'have' but 'have' I will just spell out everything as it is supposed to be, but 'to' I can write out the Roman numeral, and then, I don't know, 'see' 'c' as well (10:47).*
- *But like with your mom, some of the words like, you know, she might not get, so you just think about if you were in her place (13:29).*
- *Uhm, it do, it would be, okay, like in between, like semi, semi-formal So, I would, I would keep it formal, like formal writing and that, but one, one or two words I would, uhm, I would send it, which, which are, which come from like habits (26:4-6).*
- *With my gran I don't think I'd abbreviate at all (30:5).*

- *sometimes, maybe I'll put Tswana in (49:16).*

Statements related to changing the way an SMS was written to a teacher in a formal context also indicated that all the high self-regulators and most of the low self-regulators would change their SMS writing style to accommodate the teacher:

- *Yes, I would (2:7).*
- *Ok to a parent I would speak the same way as I do to my friends it is very open or whatever, to an English teacher I might have to change it slightly (44:12).*
- *Like would the punctuation be correct? And no like exclamation marks (6:10).*

6.3.2.5.3 Reschedule time to SMS

Generally speaking, all of the participants who were interviewed indicated that they would not reschedule their time to SMS. This links with the goal setting strategy of planning time to SMS (§6.4.2.3), when all of the participants indicated that they rush their SMSes. What has been noted in the analysis of the statements regarding the self-reaction strategy of rescheduling of time in order to SMS is that some participants with high self-regulation indicated that they would reschedule their time in order to SMS in informal and formal contexts. The statements related to rescheduling of time for informal SMSes were:

- *Maybe, if it is important (4:19).*
- *50/50 sometimes if I am not busy with something immediately but if it is not the right time I will just wait (22:7).*
- *I'd postpone when it's really necessary (28:56).*

Statements with regard to rescheduling time to compose a formal SMS were:

- *Yes, if it is mostly something important and if I am talking to someone and SMSing I can't do them at the same time. So I would have to finish talking to you then set aside time to SMS her (23:11).*
- *No, I would want to write a proper SMS (3:7).*

Other high self-regulators indicated that they would not reschedule a special time to SMS in a formal context:

- *Well from the minute that I see the message I would send it immediately (8:15).*
- *No, even for my teacher, no (43:21).*

Participants with low self-regulation indicated that they would not reschedule their time to send an informal SMS:

- *No I don't like say at 5 o'clock I am going to go and do that or SMS (44:17).*
- *Uhm, I wouldn't, I won't have a time especial [unclear] as I said earlier (27:16).*

Within a formal context, some participants with low self-regulation indicated that they would reschedule time to SMS:

No, I'd have to reschedule time (18:19).

Other low self-regulators indicated that they would not reschedule time to compose an SMS, even if the context was formal:

- *I could just do it quickly (49:20).*
- *The message I would immediately just reply (27:17).*

6.3.2.5.4 Ask for assistance

Some high self-regulators and low self-regulators indicated that they would seek assistance when constructing or reading an SMS that they did not understand. Statements related to seeking assistance for the high self-regulators were:

- *The person who sent me the SMS (4:22).*
- *You know? I usually ask let's say my friends and I are having a casual conversation. What does this mean? (16:82).*
- *I've received, I just text back to the person and say, I don't understand, please just text (16:66).*
- *Yes you have to. The same person who sent it, you say 'what are you trying to say? (10:57).*

Participants with low self-regulation indicated much the same when they stated:

- *I normally ask my cousins (19:58).*
- *someone like sends me like some of the abbreviations, like I still didn't know about, so when I get there, I just ask like what is this? And then they explain to you and then you know it for the next time (13:66).*
- *Ja or SMS them back (44:19).*

Related to 'asking for assistance' is the self-reaction strategy of 'figuring it out'. The participants indicated that they would first try to figure it out and only then, if they could not make sense of what the SMS said, would they ask for assistance:

I usually try to figure it out first, but usually I do reply and ask 'What do you mean?' (1:15).

6.3.2.5.5 Figure it out

The self-reaction skill of 'trying to work it out' came to the fore in the analysis of the interview data. When asked what the participants would do if they were confronted with a word or concept which they did not understand, all of the participants indicated that they would 'figure it out'. Statements related to this phenomenon were:

- *But then, ja, basically I taught myself most of it (16:72).*
- *I try and figure it out on my own (28:65).*
- *I just looked, I played around with the keys (40:54).*
- *I have just over the years learnt by myself, sort of trial and error (44:28).*
- *I always just go through the phone figure it out by myself (19:84).*

6.3.2.6 Environment

The environmental processes (i.e. environmental self-regulation) involved in self-regulation, centre on a writer's ability to control and adapt the physical or social setting in which they write (Zimmerman & Risemberg, 1997a: 76).

Most of the participants in this study indicated that they can construct an SMS anywhere:

- *it just depends let's say, I get an sms from my mom, I just reply, even if I have friends around me, quickly and then (16:106).*
- *we are together as a group and then we all decide to like, some people will be on mxit, Facebook, sms, whatever then that's fine (28:97).*
- *Anywhere (16:120).*
- *I can sms anywhere (19:87).*
- *Ja I can construct an SMS while walking (7:17).*
- *Ja I do, when I am in front of my friends and stuff we do SMS we don't say you are being socially rude or whatever, but I do feel likes its irritating when you are sitting with your friends and like that person is on the phone the whole time it feels like they don't want to be with you (1:38).*

Only one participant with high self-regulation indicated that she preferred to construct an informal SMS alone:

I like SMSing by myself, cause when you are talking and with people you don't really focus on what you are saying so I tend to just do it when I am alone (22:49).

Although participants generally agreed that they could construct an SMS text message anywhere, some participants with high and low self-regulation indicated that they would move to a quieter area if they were constructing an SMS in a formal context:

- *I would do it in a quiet place because I don't want to make any mistakes (2:14).*
- *No I think it would be better in a quiet place, cause what I tend to do is when it's busy I write a sentence or whatever and then I have to reread the sentence and then I carry on typing. Ja noisy environments do. The SMSing takes longer because I get distracted and I have to reread and refocus, find out where was I, reread the question ok, I forgot now, reread the SMS I received, think about the question I was asked think about how I am going to reply, so it takes a lot longer (3:14-15).*
- *I would be by myself. I would need a quiet place. Because he would catch the mistakes easier as opposed to, you know? (24:19).*

6.3.2.7 Conclusion to analysis of interviews

According to Zimmerman and Risemberg (1997a:79) certain triadic self-regulatory processes manifest themselves when a writer sits down to compose a writing piece (see Table 4.1). An analysis of the interviews identified the following self-regulatory processes in SMS composition in this study:

6.3.2.7.1 Environmental processes

Participants in this study indicated that they did not employ environmental structuring strategies when composing an SMS (§6.3.2.6). The majority of participants indicated that they did not use the cellular telephone manual when learning how to compose an SMS (§6.3.1.2.3), nor did the majority of participants imitate a more gifted writer of SMSes (§6.3.1.2.4). Participants also indicated that generally, they did not need to manipulate their environment in order to construct an SMS. It has been indicated that the majority of participants could SMS anywhere (§6.3.1.6). It can therefore be concluded that environmental processes do not make up a big part of the strategy repertoire of the participants in this study.

6.3.2.7.2 Behavioural processes

The analysis of the interviews indicated that the participants in this study employed self-monitoring processes in order to track the performance of the process of writing an SMS. SMS employs a forum that does not lend itself to the use of paper and pen, but participants still indicated that they would keep track of concepts or words that were not understood (§6.3.1.3.1), they would keep track of what they were trying to communicate (§6.3.1.3.2) and high self-regulators in particular would ensure that the goal of the SMS had been reached before sending it (§6.3.1.3.3). What is unique to SMS though, is the fact that participants indicated that they would also monitor the changes that occurred in SMS language and use these various forms of SMS language in text messages which they would compose (§6.3.1.3.4).

6.3.2.7.3 Personal processes

Where self-regulation in SMS comes to the fore though is with the use of personal processes in self-regulation.

Goal setting involves specifying the intended outcome of the writing effort (see Table 4.1) and is more evident in formal contexts of SMS. The reason given for not setting a specific goal for an informal SMS relates to the conversational nature of SMS as participants indicated that they did not set goals for informal SMSes because 'it is like a conversation' and they 'write like they speak' (§6.3.2.1.1). The goal setting strategies used by the participants in this study were: setting specific goals for formal SMSes, thinking about the content of the SMS before beginning the writing process (§6.3.2.1.2) and to a lesser degree taking time to construct a good SMS (§6.3.2.1.3). High self-regulators indicated that they would take more time to compose a formal SMS while low-self-regulators indicated that they would 'rush' through the process. This links with the fact that the participants generally indicated that they did not reschedule their time in order to compose a good SMS (§6.3.2.5.3).

The use of self-evaluative standards is of particular relevance in constructing an SMS as the participants in this study indicated that they would use these standards to judge the quality of an SMS (§6.3.2.4). SMSes which were informal in nature and were sent between peers did not require much self-evaluation, but participants indicated that they would ask themselves questions regarding the content of the SMS (§6.3.2.4.1), ask themselves questions regarding the meaning in the SMS (§6.3.2.4.2) and have a good idea of how well their SMSes would be understood (§6.3.2.4.4) when they were composing a formal SMS. The self-evaluative

strategy that is most commonly used by the participants, when judging the quality of an SMS, is 'rereading the SMS' to ensure that it makes sense (§6.3.2.4.3).

The use of cognitive strategies also came to the fore when an SMS was being written. Participants indicated that for more formal contexts of SMS writing, they would work out a framework (i.e. organising) for the SMS before beginning the writing process (§6.3.2.2.1). They also indicated that they would ask themselves questions during the writing phase in order to focus their attention on what they were trying to communicate informally and formally (§6.3.2.2.2). Participants also indicated that they would change (i.e. transforming strategy) the style of an SMS and they manner in which they wrote the SMS for different audiences (§6.3.2.5.1 and §6.3.2.5.2). What is unique to SMS though is the fact that although the participants would ask for help when composing and reading an SMS (§6.3.2.5.4), they would also try to 'figure it out' by themselves (§6.3.2.5.5).

6.3.3 Participants' portfolios

An analysis of the creative writing portfolio pieces of the participants in the qualitative phase of this study was conducted in order to determine if SMS language, with particular reference to SMS respellings had in any way infiltrated academic writing. The rationale behind this analysis was in order to determine if SMS had in any way had an influence on the writing achievement of the participants in this study, thus augmenting the quantitative data gleaned in order to address **research question 4**: *What is the nature of the relationship between writing and spelling age?*

No evidence of SMS language or SMS respellings could be found in any of the portfolios' that were analysed. It did not matter if the participant had a high spelling age or a low spelling age, the final draft of each academic writing piece that was submitted for the portfolio was free of SMS language, SMS respellings and free of most general spelling mistakes. The spelling mistakes that were observed could be attributed to a general spelling rule (e.g. 'i' before 'e' except after 'c') not being adhered to, and not to the assimilation of SMS language into academic writing.

The reason for the omission of SMS language and respellings from the academic writing pieces that were analysed for this study, could be found in the fact that writing is taught as a process-driven activity, in line with the guidelines set out by the National Curriculum Statement for Languages (English Home Language) (DoE, 2003: 30-35). The National Curriculum Statement for Languages specifically lays down the process-driven approach to writing when it is stated in Learning Outcome 3 that:

- Learners must be able to demonstrate planning skills for writing for a specific purpose, audience and context,
- Learners must be able to demonstrate the use of advanced writing strategies and techniques for first drafts and
- Learners must be able to reflect on, analyse and evaluate own work, considering the opinion of others and present a final product.

This process-driven approach was in evidence in the portfolio pieces that were analysed. The final academic writing piece (i.e. the final product) was accompanied by a mind map (i.e. evidence of planning) and a first draft (i.e. using techniques for first drafts). The participants thus had two opportunities to eliminate evidence of SMS language or respellings and to correct general spelling mistakes, before submitting the final product for assessment. Evidence of other process-driven strategies were also in evidence:

- The use of a bibliography showed evidence that research had been conducted,
- The use of mind maps showed the coherent organisation of ideas,
- The preparation of a final draft with evidence of proof reading and editing,
- Presentation of the final product as a well-crafted text.

Once the data from the qualitative phase of this study had been analysed and interpreted, it was integrated with the data from the quantitative phase in accordance with the sequential explanatory mixed-method design (§5.2.4).

6.4 Integration of quantitative and qualitative data

During this phase of the study, the data from the qualitative phase was integrated with the quantitative data, in order to explain and augment the phenomena exposed in the quantitative phase of this study. The qualitative phase was specifically geared to explain the nature of SMS language and to explore the nature of self-regulation in SMS. The integration of the data regarding the nature of SMS was discussed first, followed by the integration of the data relating to the relationship between self-regulation and SMS.

6.4.1 The nature of SMS

Research question 1 and 2 ask: *what is the nature of SMS and does SMS language lead to changes in spelling and if so, what is the nature of the changes in spelling?* The General Survey of SMS exposed how the participants in this study used SMS (§6.2.2.1), how they manipulated language in SMS (§6.2.2.2), to whom they sent SMS text messages (§6.2.2.3)

and the types of SMS text messages that they sent (§6.2.2.4), thus indicating the nature of SMS. Within the qualitative phase of this study, 78 SMS text messages were analysed, which were made up of 1933 words (or units) in order to determine the nature of the changes in SMS spelling (§6.3).

6.4.1.1 Abbreviations

Table 6.3 summarised the findings related to the use of SMS language by the participants in this study. 95 percent of the participants in this study indicated that they used a form of abbreviated language when sending SMS text messages (§6.2.2.2). The type of abbreviations that were evident in an analysis of the SMS text messages were:

- 47 percent of all abbreviations took the form of shortenings. Words were shortened by reducing letters (i.e. double letter reduction), combining words (i.e. kind of > kinda), replacing 'cks' with 'x', using 'z' as a plural form and omitting vowels from words (i.e. first letter, mid-vowel or end-vowel).
- 3 percent of the abbreviations took the form of a contraction. (i.e. Birthday > bday).
- Clippings or the omission of the final letter from a word was also in evidence as 1 percent of all the abbreviations took the form of either a g-clipping or a t-clipping. There was also evidence of y-clippings, but these could not be classified as abbreviations as the y-clipping did not lead to an abbreviated word. The reason for this was that the 'y' that was clipped from the end of a word was replaced with an 'i'. This 'y' replacement and substitution with an 'i' has more to do with the personal style of the writer than the ergonomic value of the abbreviated word.

6.4.1.2 Acronyms and initialisms

90 percent of the participants indicated that they did use acronyms and initialisms in their SMS text messages. This fact is not supported by an analysis of the SMS text messages. There was only evidence of the use of acronyms in five of the 78 SMS text messages that were analysed. These acronyms were expostulations (e.g. 'OMG' and 'LOL') and there was no evidence of the use of initialisms. The reason for the lack of acronyms and initialisms in the SMS text messages that were analysed could lie in the fact that many of the participants indicated that they used acronyms and initialisms when they communicated using the chatroom format of MXit. Further study is warranted regarding this unique feature of SMS language within the forum of MXit.

6.4.1.3 Non-standard variations of spelling in SMS

91 percent of participants indicated that they used non-standard variations of spelling in the SMS text messages that they composed (see Table 6.3). An analysis of the SMS text messages highlighted the use of alpha-numeric homophones as the most common non-standard feature of SMS spelling. Seven percent of the words in the SMSes that were analysed were alpha-numeric homophones (e.g. 'one' > '1', 'to' > '2' or 'celebrate' > 'celebr8') or visual morphemes (e.g. 'xxxx' indicating a kiss at the end of a SMS text message).

6.4.1.4 Simulation of the spoken word

73 percent of the participants indicated that their SMS text messages did reflect the spoken word. An analysis of the SMS text messages showed that only two percent of the SMSes provided evidence of the simulation of the spoken word. These simulations took the form of sound simulations (e.g. 'hahaha' or 'mwah'), reduplication for emphasis (e.g. 'geeeeeee' or 'sooo') and accent simulations (e.g. the insertion of South Africanisms like 'leka' or 'ja'). In the interviews conducted in the qualitative phase of this study, many participants indicated that they 'write like they speak' (§6.3.2.1.1) especially when using MXit. Further study regarding the phenomenon of accent stylisation should be considered using the forum of MXit.

6.4.1.5 Capitalization

79 percent of the participants in the quantitative phase of this study indicated that they used capitalization for emphasis (see Table 6.3). An analysis of the SMS text messages in the qualitative phase highlighted the fact that capitalization was used minimalistically or not at all (§6.3.1.5). There was evidence of a lack of capitalization of the first letter of the first word of each sentence and the minimalistic use of capitalization for pronouns, especially the use of 'i'. There was only one example of the use of capitalization for emphasis, when the writer of this SMS used in-text capitalization for effect (see Table 6.20). This lack of capitalization exhibited by the participants in this study is in accordance with the review of literature (§2.7.2.2).

6.4.1.6 Punctuation

The quantitative phase of this study indicated that 89 percent of the participants used punctuation for emphasis while only 41 percent used unusual combinations of punctuation for effect in their SMS text messages (§6.2.2.2). The analysis of the SMS text messages

highlighted the fact that there was very little use of punctuation (§6.3.1.6 and Table 6.21). The SMS text messages showed evidence of a lack of punctuation especially in contractions (e.g. cant, cudnt, dnt and im). The uses of ellipsis dots for effect were in evidence as well as the excessive use of exclamation marks. There was only one example of the use of combinations of punctuation marks for effect and these combinations reflect the personal style of the writer.

6.4.1.7 Emoticons

88 percent of the participants who completed the General Survey of SMS indicated that they used emoticons or smileys in the SMS text messages that they wrote. Emoticons were found in 30 SMS text messages of the 78 messages that were analysed for the qualitative phase of this study (§6.3.1.7 and Table 6.22). The most common form of emoticon found in the analysis of SMS text messages from this study, was the colon set (e.g. :-]) and the equals set (e.g. =P).

6.4.1.8 Conclusion

An integration of the data from the quantitative phase and the qualitative phase of this study revealed the following regarding the nature of SMS language: SMS language is a highly abbreviated form of communication. This abbreviated language (§6.3.1.1) took the form of shortenings, combining words, vowel omissions, contractions and clippings. The use of non-standard spellings was also evident in the use of alpha-numeric homophones (§6.3.1.3) and simulation of the spoken word (§6.3.1.4). There was an evident lack of the use of capitalization (§6.3.1.5) and punctuation (§6.3.1.6), although punctuation was sometimes used for effect. Emoticons also formed part of the repertoire of SMS language that was used by the participants in this study (§6.3.1.7). What is noticeable regarding the abbreviated language used by the participants in this study, is the fact that they did not use acronyms or initialisms to the extent that was expected or indicated by a review of literature (§6.3.1.2).

The next section of the qualitative analysis involved the analysis of the data gleaned from the semi-structured interviews in order to address **research question 6: *is there a relationship between self-regulation and SMS, and if such a relationship exists, what is the nature of this relationship?*** (§1.3).

6.4.2 The relationship between self-regulation and SMS

In order to answer **research question 6** which asks *if a relationship exists between self-regulation and SMS*, the quantitative data from the Self-regulated learning in SMS questionnaire was integrated with the qualitative data from the interviews. This was done in order to seek elaboration, enhancement, illustration and clarification of the results and to ensure that a complete picture of the phenomenon was obtained (§5.2.4). The sub-headings of the following section dealt with the self-regulatory strategies that were identified in the Self-regulated learning in SMS questionnaire and the interviews, namely: goal setting, strategic planning, self-recording, self-evaluation and self-reaction.

6.4.2.1 Goal setting

The self-regulatory strategy of goal setting indicated a large effect size ($d=2.57$) between the high self-regulators and the low self-regulators, indicating there was a practical significance between the two groups. This indicates that high self-regulators set goals for themselves when composing an SMS text message (see Table 6.8). The qualitative interview phase of this study identified subtler goal setting strategies that were employed by the participants in this study, in various contexts for SMS.

- **Setting a specific goal**

Participants indicated that they would set goals for more formal contexts in order to communicate the details of the message correctly and to keep the tone or style of the message more formal. The motivation for keeping the goal in mind included having respect for a teacher and including all aspects of punctuation (§6.3.2.1.1). Reasons given for not setting a specific goal for an informal SMS included the fact that SMSes have a conversational nature and that the participants ‘write like they speak’.

- **Thinking about the content of the SMS**

Another aspect of goal setting which came to the fore in the analysis of the interviews was that the participants were more likely to think about the content of the SMS before they began writing, especially if the context of the SMS was more formal (§6.3.2.1.2). The motivation for thinking about the content of the SMS before beginning the writing process lay in the goal of the SMS. If the SMS required specific information to be communicated, participants were more likely to think about what they want to say, before writing the SMS.

- **Taking time to compose an SMS**

Taking time to plan an SMS is a goal setting strategy that was not displayed by the participants in this study, especially if the context of the SMS was informal (§6.3.2.1.3). Most participants indicated that they would 'rush' their SMS text messages. The only exception to this was when the high self-regulators indicated that they would take more time to set a specific goal and think about the content of the SMS if the context was more formal. The motivation for taking more time lay in the fact that these particular participants did not want to be 'judged' by their teacher and as such, took more time to compose a formal SMS.

6.4.2.2 Strategic planning

The self-regulatory strategy of strategic planning indicated a large effect size ($d = 3.02$) with a large practical significance indicated between high self-regulators and low self-regulators. This indicated that high self-regulators were more likely to engage in planning activities before composing an SMS text message than their low self-regulation counterparts (see Table 6.8). An analysis of the interviews in the qualitative phase of this study highlighted the fact that certain strategic strategies were evident amongst the participants in this study. These strategies included: creating a framework for the SMS, asking questions to focus the meaning in an SMS, referring to the guidelines for SMS in the cellular telephone manual and modeling SMS behaviours on others.

- **Framework for SMS text messages**

The participants in this study indicated that they would work out a framework for an SMS text message before beginning to write, especially if the context of the SMS was more formal (§6.3.2.2.1). The reasons given for working out a framework lay in the fact that the structure of a formal SMS would be of importance. Informal SMSes once again, mimicked the informal nature of spoken language and as such, participants indicated that if the SMS were 'casual', they would not work out a framework for the SMS.

- **Ask questions to focus meaning in an SMS**

High self-regulators in particular indicated that they would ask themselves questions to focus the meaning in an SMS for both informal and formal contexts (§6.3.2.2.2). The main motivation for asking questions to focus the meaning in an SMS was to ensure that the SMS 'sounded right' or to ensure that the recipient of the SMS understood what was being stated. The participants with low self-regulation indicated that they would not necessarily ask

themselves questions to focus the meaning in an SMS, whether the context of the SMS was informal or formal.

- **Refer to guidelines for SMS**

Participants in this study indicated that they would not refer to the guidelines laid out in the manual for SMS writing provided by the cellular telephone company. The only time that they would refer to the manual would be to clarify how the charger works or how to take out the battery or sim card (§6.3.2.2.3). Participants in this study indicated that they preferred to 'figure out' how to compose an SMS without referring to the guidelines (§6.3.2.5).

- **Peer assist or modeling**

Most of the participants in this study indicated that they would not use the strategic planning strategy of modeling their SMS behaviours on other writers' behaviours (§6.3.2.2.4). Those participants who indicated that they would model their writing behaviours indicated that they would model the behaviours of their siblings rather than their peers.

6.4.2.3 Self-recording

The self-regulatory strategy of self-recording indicated a large effect size ($d = 3.62$) which highlighted the fact that high self-regulators indeed used the strategy of self-recording more than low self-regulators (see Table 6.8). The interview phase of this study drew attention to the fact that the participants employed the self-recording skills of keeping track of words or concepts (§6.3.2.3.1) and keeping track of what must be communicated especially in formal SMSes (§6.3.2.3.2). The high self-regulators indicated that they would always ensure that the goal of the SMS had been met, while low self-regulators indicated that they would check that the goal of the SMS had been met, but to a lesser degree than the high self-regulators (§6.3.2.3.3). The final strategy that was identified as a self-recording skill in SMS was 'keeping track of trends or fashions in writing'. The participants indicated that they would keep track of new trends in writing (§6.3.2.3.4), either to copy the writing style or to ensure that they understood the new trends in order to understand what was being written in the SMS text messages that they received.

6.4.2.4 Self-evaluation

The self-regulatory strategy with the greatest effect size ($d = 4.50$) was that of self-evaluation. The practical significance was very large when looking at the differences between how high self-regulators use this strategy and how low self-regulators use self-evaluation to

judge the quality of an SMS (see Table 6.8). An analysis of the interviews in the qualitative phase of this study, underscored the use of the following self-evaluation strategies which were used by the participants in this study: asking questions regarding the content and meaning in an SMS, rereading an SMS and having an idea of how well the SMS will be understood (§6.3.2.4).

- **Asking questions regarding the content of the SMS**

Most low self-regulators indicated that they would not ask themselves questions regarding the content of the SMS regardless of the context of the SMS text message (§6.3.2.4.1). On the other hand, high self-regulators indicated that they would ask themselves questions regarding the content of the SMS in informal and formal contexts. The reasons given for asking themselves questions included: whether or not the receiver understood the SMS and ensuring that the correct details had been communicated.

- **Asking questions regarding meaning in the SMS**

Both high and low self-regulators indicated that they would ask themselves questions to check the meaning in an informal and formal SMS (§6.3.2.4.2). The motivation for asking questions regarding the meaning in the SMS was the same as was indicated in the previous section, to check that the recipient understood what had been written and that the content of the SMS was correct.

- **Check or reread the SMS**

The self-evaluation strategy of rereading an SMS was employed by all the participants in the qualitative phase of this study, whether the SMS was informal or formal (§6.3.2.4.3). Once again, the motivation for rereading the SMS lay in the fact that the participants wanted to ensure that the message would be understood and that there were no mistakes in the SMS. With regard to the more formal SMSes, the emphasis would be on checking that there were no spelling mistakes, that the punctuation was correct and that everything was written out in full.

- **Idea of how SMS will be understood**

All the participants in the qualitative interview phase indicated that they were generally well understood when they wrote an informal SMS. The reasons given for being well understood included the fact that the recipients of the SMS text messages understood the abbreviations that were used and that they were able to figure out what had been written (§6.3.2.4.4).

When it came to writing a more formal SMS, the participants indicated that the recipients would understand what was being written because it would be written out in full.

- **6.4.2.5 Self-reaction**

The self-regulatory strategy of self-reaction indicated a large effect size ($d=2.74$) between high and low self-regulators (see Table 6.8) with there being a practically significant difference between the manner in which participants with high self-regulation and participants with low self-regulation employed self-reaction strategies when composing an SMS. The interview phase distinguished the differences between how high self-regulators use the self-regulatory skills of changing the style of an SMS to suit the audience, changing the way an SMS is written, rescheduling time, asking for assistance and figuring it out (§6.3.2.5).

- **Changing the style and manner in which an SMS is written**

Participants with high self-regulation and low self-regulation indicated that they would change the style in which they wrote an SMS to suite the audience whom they were addressing. When the context of the SMS became more formal, all the participants indicated that they would definitely change the style of the SMS. The style of an SMS for a grandparent or a teacher would tend to be more formal and more structured (§6.3.2.5.1). These participants also indicated that they would change the manner in which they wrote the formal SMS (§6.3.2.5.2) by ensuring that they did not use abbreviations, by writing out everything in full and by changing aspects that they felt the recipient would not understand.

- **Rescheduling time to SMS**

Generally speaking, the participants in this study would not use the self-reaction strategy of rescheduling time to SMS (§6.3.2.5.3). The participants who indicated that they would reschedule their time to SMS stated that they would only do so for more formal SMSes, but then only if it was important. Generally speaking, participants with high and low self-regulation indicated that they would reply to an SMS that they had received, without rescheduling special time to do it. This links with the lack of time management in goal setting, when participants indicated that they would rush their SMS text messages (§6.3.2.1.3).

- **Ask for assistance**

The self-reaction strategy of 'seeking social assistance' when constructing or reading an SMS, was in evidence with the analysis of the interviews in the qualitative phase of this study (§6.3.2.5.4). Generally speaking, the participants indicated that they would ask the person who had sent them the SMS to explain what was meant, if they could not understand what

had been written. The idea of asking others for assistance is related to the next self-reaction strategy that came to the fore in the analysis of the interviews: that of 'figuring it out' (§6.3.2.5).

- **Figure it out**

All the participants in this study indicated that they would use the self-reaction strategy of 'trying to figure it out' if they could not make sense of something that had been written in an SMS (§6.3.2.5). Participants indicated that they would only ask for assistance when they were unable to work it out for themselves. Participants also indicated that they preferred to work out how to compose an SMS or how the cellular telephone functions rather than seeking social assistance.

6.4.2.6 Environmental manipulation strategies

Most of the participants in this study indicated that they could construct an SMS anywhere (§6.3.2.6). Participants did indicate however, that they would rather move to a quieter area when constructing an SMS that was more formal in nature. The reasons given for the use of this environmental manipulation strategy was so that they would not make any mistakes and in order to eliminate distractions.

6.4.2.7 Conclusion

An analysis and interpretation of the data from the quantitative and qualitative phases of this sequential explanatory mixed-method design was presented in Chapter 6. The quantitative data were analysed and presented (§6.2), followed by an analysis and interpretation of the qualitative data (§6.3). The data from both the quantitative and qualitative phases were then integrated into a comprehensive data set (§6.4) in order to explain the phenomena that were exposed in the quantitative phase of this study.

Chapter 7 follows herewith, where the findings of the integrated data set are presented, with recommendations for further research.

SUMMARY, FINDINGS AND RECOMMENDATIONS

7.1 Introduction and statement of the problem

'Millennials', who were born between 1982 and 2000, also known as 'technology natives' or 'Digital Natives', have been born into the fast paced world of computers, the Internet, e-mails and cell phones (Vail, 2005: 30). Vieux (2003) has coined the phrase DIG generation, where DIG stands for 'digital immediate gratification', a generation "on the move to all things digital, ..."

Research has shown that this new digitally-aware generation uses a new writing style when communicating electronically. 'Netspeak' is a digital language, which has emerged with the advent of the Internet (Crystal, 2002b: 85). The features of Netspeak are often found in SMS (Short Messaging Service) language, although the obvious challenges of the cell phone's small screen has lead to the development of an abbreviated language that often has a rebus-like quality (Crystal, 2002b: 229).

SMS language is often referred to as 'texting' colloquially (Crystal, 2002b: 141). The 'DIG' generation communicates through SMS texts, which apply vastly different criteria to texts which are not written digitally (Aw *et al.*, 2006: 8). Although there are various forms of digital tools and a variety of written communications to be found on the Internet, this research study chiefly concerned itself with the language that is used when users communicate via cellular telephones, using SMS language.

When communicating via cellular telephones, contracting words saves time and is cost effective (Leslie, 2001: 370; Padamanabhan, 2003). Because of the ease of use and accessibility of cellular telephones and the quick manner in which one can communicate, SMSes have changed the way that people communicate (Doyle, 2003:175). The use of SMS jargon and SMS language, with its removal of vowels from words, contraction of words, abbreviations, the creation of new words from acronyms instead of conventional English is becoming a nightmare in schools while an increasing number of pupils are using this 'modern and quick' writing style instead of correct English (Sathege, 2005). This statement is backed

up by Hayslett (2006) who states that teachers are observing that learners are handing in work that looks more like instant-messaging conversations than English assignments.

7.2 Review of literature

7.2.1 SMS language

SMS language was born out of the development of Computer-mediated communication (CMC), an abbreviated form of written communication that came to the fore with the advent of the Internet. CMC (§2.4) displays characteristics of both speech and writing (see Table 2.2), a characteristic of digital communication which is mirrored in SMS language (§2.7.2.1). The youth, also referred to as 'Millennials' (§2.5), have adopted the rapid-fire style of writing associated with CMC and SMS language. 'Millennials' are characterised by the fact that they are able to process information quickly, thrive on instant gratification and are able to multi-task. Also referred to as digital natives, the youth of today function at 'twitch speed' and the style of their digital writing reflect this aspect of their 'youth culture'.

SMS language is characterised by the use of abbreviations. Although there does not seem to be a codified system in the manner in which an individual learner abbreviates the words in an SMS text message, texters (i.e. people who send SMS text messages) seem to employ specific types of abbreviation when composing an SMS. The abbreviations used in SMS language are characterised by shortenings (e.g. 'tnx' for 'thanks' and 'enuf' for 'enough'), contraction of words (e.g. 'congrats' for 'congratulations'), vowel omissions (e.g. 'hpe' for 'hope' and 'ntertain' for 'entertain'), double letter reduction (e.g. 'stuf' for 'stuff') and clippings (e.g. 'gettin' for 'getting' and 'onli' for 'only'). Texters also make use of acronyms (e.g. 'LOL' for 'laugh out loud') and alpha-numeric homophones (e.g. '4get' for 'forget'). A characteristic of SMS language which is most unique is the fact that this digital form of writing reflects that manner in which the Texter speaks. SMS language is interspersed with sound simulation (e.g. 'hahaha' to indicate laughter, and 'mwha' to indicate a kiss) and reduplication for emphasis (e.g. 'geeeeeee' for 'gee') in order to insert emphasis and emotion into their text messages. But the characteristic of SMS which seems to be the most unique to each person is the fact that the style of the person's writing is often influenced by his/her accent. Accent stylisations often appear in an SMS text message. Research conducted in Nigeria (§2.7.2.1) found that written Nigerian stylizations are an approximation of the written word (e.g. 'diz' for 'this', 'thot' for 'thought', 'numba' for 'number' and 'oda' for 'other'). The participants in this study use Standard English when composing SMS text messages and Academic English when writing formal academic writing pieces. As SMS language (§2.7) is placed in direct

opposition to the belief that written language should not be affected by spoken language, this study investigated this phenomenon further.

SMS language also exhibits novel characteristics which have not been noted in CMC (§2.8). These novelties (e.g. use of extended initialisms) are often motivated by the personal style of the person who is writing the SMS (§2.9). Personal style and idiosyncrasies in SMS language are in their part motivated by the choices made by the individual texter, as to whether or not abbreviations will be used and the influence of regional dialects on the written word.

Due to the fact that learners are using SMS language creatively and expanding the boundaries of what is considered academic writing, the value of self-regulated learning in writing is emphasised as learners prepare themselves for the ever-changing digital world where they are expected to adapt the skills that they already possess in order to learn new skills, especially with regard to writing in the digital arena. In this study, self-regulated learning and self-regulation in writing are viewed from a social cognitive perspective.

7.2.2 Self-regulation from a social cognitive perspective

Social cognitive theory (§3.2) posits that human functioning is the product of a dynamic, reciprocal and triadic interaction between personal, behavioural and environmental variables. Involving bidirectional self-orientated feedback loops (§3.3). Social cognitive theory assumes enactive and vicarious learning (§3.2.2) which states that learning either occurs enactively (i.e. by physically and mentally completing a task) or vicariously (i.e. by observing others complete a task). The separation of learning and the performance of previously learned behaviours (§3.2.3) is another assumption that marks social cognitive theory for example, procedural and conditional knowledge can be acquired but not demonstrated when learning occurs, but will only demonstrate such knowledge when it is important to do so.

Zimmerman (2000a:14) distinguishes between three forms of self-orientated feedback loops: behavioural, environmental and personal self-regulation. Behavioural self-regulation relies on the self-orientated feedback loop as the cyclical process in which learners' monitor the effectiveness of the use of their learning strategies and react to this feedback (either covertly or overtly). Environmental self-regulation refers to a learner's ability to observe and then adjust environmental conditions or outcomes in order to maximise his/her learning activities, while covert self-regulation involves monitoring and adjusting cognitive and affective states.

Zimmerman (2000a) developed the social cognitive idea that self-regulation processes and accompanying beliefs fall into three cyclical phases: forethought, performance/volition and

self-reflection (§3.5 and Figure 3.3). The forethought phase (§3.5.1) involves the beliefs, attitudes and processes that a learner possesses prior to engaging in the process of learning. This capacity for forethought is embedded in the self-regulatory sub-processes of task analysis and self-motivational beliefs.

As part of the forethought phase, task analysis (§3.5.1.1) refers to the ability a learner has to focus his/her attention on the specifics of the task content and how to use that content effectively. Once a learner has analysed the task at hand and set a goal for him/herself, the learner engages in strategic planning, actively selecting the methods that are most appropriate for the completion of the task at hand, as well as for attaining the goals that were set. The planning and selection of these methods or strategies requires cyclical adjustments to the covert personal, behavioural and environmental components of self-regulation.

The forethought phase is underpinned by various motivational beliefs (§3.5.1.2) which stem from the learner's personal beliefs about learning, such as self-efficacy, outcomes expectations, intrinsic interest or value and goal orientation. Research has shown that self-efficacy is a determinant of academic achievement and has an impact on the motivation shown by learners completing a writing task. Self-efficacy is also linked with goal setting as a learner's perceived efficacy to achieve motivates his/her academic achievement by influencing personal goal setting. The more capable learners judge themselves to be, the more challenging goals they set for themselves.

Self-efficacy and outcome expectations work hand-in-hand as what a learner believes about his/her capabilities and what he/she expects as the final outcome of a performance, cannot be separated. Outcome expectations refer to the beliefs one has regarding the consequences of one's actions. If a learner believes that the ultimate outcome of a performance is embedded in performing the task masterfully, this should provide an intrinsic motivation to perform the task well.

Intrinsic interest or value is seen as the subjective interest a learner has regarding the content of the task. Intrinsic interest is strongly related to the use of cognitive strategies, self-regulation and the manner in which a learner approaches a task i.e. his goal orientation which, refers to the manner in which a learner approaches, engages with and responds to academic situations.

Once a learner has analysed the task and decided on a goal and a strategic plan to complete the task, it becomes necessary to self-regulate the performance aspects of the endeavour. Two types of performance control processes are important for self-regulated learning: self-control and self-observation.

Self-control (§3.5.2.1) includes all the processes necessary for the completion of a task and attaining the goals associated with that task such as self-instruction, imagery, attention focussing and task strategies. Self-instruction allows a learner to overtly or covertly describe how to proceed with the execution of the task. Two processes can assist a learner with self-instruction: imagery and attention focussing. Using imagery to form mental pictures allows a learner to codify information in order to explain concepts (i.e. graphic diagrams). Using attention focussing allows a learner to improve his/her concentration and screen out covert or external distractions.

The next process in the performance phase provides the concrete application of strategies. Research indicates that learners' require a broad range of strategies in order to self-regulate effectively. Learners, who are more cognitively engaged in using learning strategies, perform better academically than learners' who tended not to use strategies. The use of self-regulated strategies includes the use of strategies to self-evaluate, organise/transform, set goals, seek information, keep records, structure the environment, initiate self-consequences, seek social assistance, review records and other. The purpose of these strategies is to improve learners' self-regulation of their personal functioning, their academic behavioural performance and the learning environment.

In order to keep track of the specific aspects of a performance, the conditions that surround the performance and the effects that it produces, learners' often self-record and self-experiment. Self-recording is a common self-observational technique that can increase the feedback a learner receives regarding the performance of a task. Through the observation of covert thought patterns and emotional reactions, as well as overt performance, learners are able to identify recurrent patterns in their behaviour. Learners are then able to modify their behaviours or their environment in order to plot corrective courses of action if necessary. Self-observation can lead to cycles of self-experimentation, especially when learners are unable to diagnose problem areas in their academic functioning. Self-experimentation leads to a greater personal understanding and to better performance/volition control.

Without the ability to (self) reflect, learners may not learn to discriminate in applying procedures, may fail to recognise the conditions more appropriate for specific strategies and may fail to apply knowledge and strategies to different tasks. Self-judgement (§3.5.3.1) and self-reaction (§3.5.3.2) are important for self-reflection. Self-judgement refers to a learner's ability to self-evaluate his/her performance while attributing causal significance to this performance. Self-evaluation allows a learner to judge how well he/she performs a task by systematically comparing the performance against specific mastery criteria, earlier levels of behaviour or against the performance of others. Attributional judgements depend on the self-

evaluation of factors such as self-efficacy and environmental variables. Attributional judgements impact on the forethought processes also as learners who plan to use a specific strategy during the forethought phase and implement its use during the performance phase are more likely to attribute failures to that strategy rather than low ability.

Self-reaction (§3.5.3.2) the final sub-process of the reflection phase, comes to the fore once a learner has self-observed and judged the outcomes of the performance of the task at hand. The self-reactions of self-satisfaction and adaptive/defensive responses affect the forethought processes cyclically as they impact future courses of action toward a learner's goals and away from fears regarding learning. Self-satisfaction involves the perceptions a learner may have regarding the satisfaction or dissatisfaction of the performance of a task. A learner's motivation does not stem from the goals themselves but rather from the self-evaluative reactions to behavioural outcomes. Learners will also draw adaptive inferences about how they need to alter their self-regulatory approach to subsequent efforts. Adaptive inferences are important because they direct learners to new and potentially better forms of performance self-regulation, such as setting higher goals for themselves or choosing a more effective strategy. Ultimately, the adaptive quality of a learner's self-reactions depends on the sensitivity of his/her self-judgements.

After engaging in a task (e.g. writing an SMS text message), a sophisticated self-regulator will typically evaluate his/her task performance relative to a standard, attribute poor performance to faulty strategies and will make strategic adjustments before the next attempt at the task.

7.2.3 Self-regulation and writing

The social cognitive approach to writing (§4.4) stresses the reciprocal nature of the relationships between the triad of behavioural, environmental and personal self-regulatory influences (§3.2.1). Learners who find writing tasks difficult to complete should incorporate self-regulatory processes into their writing. Self-regulation is thought to enhance writing performance in two ways: self-regulatory processes like planning, monitoring, evaluating and revising provide building blocks for the production of a text while the use of these building blocks may act as change inducing agents which lead to strategic adjustments in writing behaviours. The three general social cognitive categories of self-regulation are environmental, behavioural and personal processes (see Figure 4.1 and Table 4.1). These processes interact reciprocally via an enactive feedback loop, involving a cyclical process in which writers monitor the success of the strategies employed and continue, modify or abandon what they are doing based on the resulting feedback.

Environmental processes involve using environmental structuring to select, organise and create effective writing settings. The selection of models as social sources of writing knowledge and skill also form part of the environmental processes involved in writing. Behavioural processes refer to self-monitoring or tracking one's own performance, making rewards or punishments contingent on one's writing accomplishment (i.e. self-consequences) and self-verbalization pertains to personal articulation to enhance the process of writing. Personal (covert) processes involve time planning, goal setting, setting and adhering to specific standards of personal satisfaction regarding writing (i.e. self-evaluative standards), using cognitive strategies to organise, produce and transform the written text and employing mental imagery skills in order to recall or create vivid mental images of the setting, activity or character while writing.

The use of self-regulated writing strategies (§4.4.1) has been shown to improve the writing skills of strategic writers. These strategies include seeking information, record keeping, organising, transforming, self-monitoring, reviewing records, self-evaluating, revising, self-verbalising, rehearsing, environmental structuring, time planning, self-consequating, seeking social assistance and selecting models. Metacognitive strategies include planning, monitoring, checking, evaluating and revising. Successful strategy instruction involves providing a rich variety of strategies, providing specific strategy instruction, attributing causal attributions of improved performance to the correct application of the strategy, highlighting that strategies can be modelled from peers, stressing that strategies can be applied to other academic domains and imparting the knowledge that these learned strategies can be embedded in everyday activities.

This study aimed to determine what the nature of the changes in SMS spelling were and whether or not these changes affected the participants spelling age and their ability to write formally within the context of a formal SMS and the English language class. This study also aimed to determine whether a relationship exists between self-regulatory skills and writing in SMS. The purpose of this study motivated the choice of a sequential explanatory research design which was devised in order to answer the research questions (§1.3).

7.3 Method of research

7.3.1 Research design

Rooted in the epistemological underpinnings of Pragmatism (§5.2.2), a sequential explanatory mixed-method design (§5.2.4) was chosen for this study. The aim of selecting a sequential explanatory mixed-method design lay in the purpose of the research. This study

aimed to seek elaboration, enhancement, illustration and clarification of the quantitative data with results from the qualitative data. This was done in order to ensure that a complete picture of the phenomenon was obtained.

7.3.2 Quantitative analysis

The quantitative section of this research study (§5.3) detailed the use of the survey as a research method (§5.3.1).

7.3.2.1 Participants

Using non-probability sampling, all the learners (n=250) of a single high school in the North-West province were selected to participate in this study (§5.3.2).

7.3.2.2 Instruments

Three instruments were employed to collect data from the participants in this study: a General Survey of SMS (§5.3.3.1), a Self-regulated learning in SMS questionnaire (§5.3.3.2) and the Schonell Graded Spelling Test (§5.3.3.3). The validity (§5.3.3.1.3 and §5.3.3.2.3) and reliability (§5.3.3.1.4 and §5.3.3.2.4) of the General Survey of SMS and the Self-regulated learning in SMS questionnaire were calculated and reported on in Chapter 5. The pre-determined independent variables (§5.3.4) in this study comprised the aspects of SMS pertaining to: the use of SMS, SMS language, the recipients of SMS, functional categories of SMS, together with certain self-regulatory strategies of SMS namely: goal setting, strategic planning, self-recording, self-evaluation and self-reaction. The participants' spelling age was also identified as an independent variable in this study. The dependent variable in this study was the creative writing achievement mark. The statistical analysis of the data (§5.3.5) in this study took part in two phases.

7.3.2.3 Statistical analysis

The data gathered from the survey and questionnaire were statistically converted by means of the STATISTICA (StatSoft, 2009), SAS (2005a) and SPSS (2009) computer software programs in order to obtain related scores for the purpose of quantitative interpretation. The statistical analyses of the data involved the descriptive analysis of the factor scores: means, and standard deviations, the calculation of the practical significance (effect sizes) and the computation of a multiple regression analysis.

7.3.3 Qualitative analyses

In addition to the quantitative component of the empirical research, a qualitative study (§5.4) was conducted in order to explain the concepts exposed in the quantitative section of this study.

7.3.3.1 Participants

Using interlaced sampling, 25 participants (10 percent of the original population) were identified for participation in the qualitative phase of this study (§5.4.1). Due to data saturation, only 14 participants were interviewed (§5.4.1) of whom 7 were high self-regulators and 7 were low self-regulators. The reason for selecting 10 percent of the original population lay in the rationale behind using the sequential explanatory mixed-method research design. The dominant quantitative phase of this research was followed by the less dominant qualitative phase (QUAN → qual) in order to explain the phenomena exposed by the quantitative section (QUAN).

7.3.3.2 Data collection

Interviews were conducted (§5.4.4) using an interview schedule (§5.4.4.1). The interview questions were aimed at determining how the predetermined self-regulatory strategies of goal setting, strategic planning, self-recording, self-reflection and self-reaction were used when composing an SMS. The interview schedule made use of three scenarios: one informal scenario and two more formal scenarios, and categories for the interview questions were identified (see Table 5.21). SMS text messages were also transcribed and analysed (§5.4.5) in order to determine the orthographic nature of the SMS language of the participants in this study. The final phase of the qualitative section of this study involved an analysis of the participants' portfolios (§5.4.6) in order to determine if SMS spelling had infiltrated the academic writing pieces of the participants in this study.

7.3.3.3 Analyses

The data from the interviews and the SMS transcriptions were analysed using Atlas.ti (§5.4.4.3). Using codes of the predetermined concepts, the transcriptions of the interviews and the SMS text messages were analysed and coded. Atals.ti then formatted the codes into an Excel table (see attached disc) and the researcher was then able to analyse and discuss the codified categories in order to organise, identify and synthesise the patterns found in the data.

7.4 Findings

7.4.1 Research question 1: What is the nature of SMS?

Short messaging service (SMS) is colloquial and informal in nature. The participants in this study use their cellular telephones primarily to visit the chatroom MXit (§2.2.1 and §6.2.2.1). These participants also use their cellular telephones to make telephone calls to a lesser degree.

The participants in this study indicated that they primarily sent SMS text messages to their friends, boy/girl friends and parents (§6.2.2.3). SMS text messages were sent in order to maintain friendships, organise social lives and to remain in contact with friends. SMS text messages were also sent in order to make practical arrangements. Sending chain messages was not a priority for the participants in this study (§6.2.2.4). The participants in this study did not send SMS text messages that had a sexual orientation, were gossip or chain letters, which stands at odds with what has been revealed in the literature (Thurlow, 2003b).

7.4.2 Research question 2: Does SMS lead to changes in spelling and if so, what is the nature of the changes in spelling?

An integration of the data from the quantitative phase and the qualitative phase of this study revealed the following regarding the nature of SMS language. The abbreviated language (§6.3.1.1) identified in the SMS text messages took the form of shortenings, combining words, vowel omissions, contractions and clippings. The use of non-standard spellings was also evident in the use of alpha-numeric homophones (§6.3.1.3) and simulation of the spoken word (§6.3.1.4). There was an evident lack of the use of capitalization (§6.3.1.5) and punctuation (§6.3.1.6), although punctuation was sometimes used for effect. Emoticons also formed part of the repertoire of SMS language that was used by the participants in this study (§6.3.1.7). There was also evidence (§6.3.1.4) of accent stylizations (e.g. 'Ja' for 'yes', 'en' for 'and' and 'sup bra' for 'what's up brother'). What is noticeable regarding the abbreviated language used by the participants in this study, is the fact that they did not use acronyms or initialisms to the extent that was expected or indicated by a review of literature (§6.3.1.2).

7.4.3 Research question 3: Is there a relationship between self-regulation in SMS and spelling age?

An analysis of the self-regulatory strategies of goal setting, strategic planning, self-recording, self-evaluation and self-reaction indicated that there was no practical significance with relation to

the spelling age of the participants (§6.3.5 and Table 6.9). It can thus be stated that there is not a relationship between self-regulation in SMS and spelling age.

7.4.4 Research question 4: Is there a relationship between writing and spelling age?

A multiple regression analysis was performed in order to determine if a relationship existed between the participants' writing achievement marks and their spelling age. An analysis of table 6.11 and Table 6.12 revealed that only one variable, spelling age, made a statistically significant contribution to R^2 . In order to further investigate if a relationship existed between the participants' spelling age and the creative writing mark, the portfolios' of the participants in the qualitative phase of this study were analysed for evidence of SMS language. No evidence of SMS language or SMS respellings could be found in any of the portfolios' which were analysed.

The relationship between writing and spelling age is thus confirmed, with the spelling age contributing to 25 percent of the creative writing mark. Thus, it can be stated that the higher the participant's spelling age, the higher the creative writing mark of that participant will be. It can also be stated that whether or not a participant had a high or low spelling age, SMS language did not infiltrate or influence the writing achievement mark of the participants in this study.

7.4.5 Research question 5: What is the nature of the relationship between writing and self-regulation in SMS?

A multiple regression analysis (§6.3.8) indicated that strategic planning in SMS, self-reaction in SMS and self-evaluation in SMS were retained by the forward step wise regression analysis (see Table 6.10) as having an influence on the creative writing achievement mark. It was also noted that participants with high self-regulation in SMS also have a higher academic writing mark than the participants with low self-regulation. It can be inferred that if a participant exhibits a higher level of self-regulation in SMS, his/her creative writing achievement will also improve, thus proving that there is a relationship between writing achievement and self-regulation in SMS.

7.4.6 Research question 6: Is there a relationship between self-regulation and SMS, and if such a relationship exists, what is the nature of this relationship?

An analysis of the quantitative and qualitative data in this study indicated the following results regarding the relationship between self-regulation and SMS: Goals were not set for an SMS text message which was conversational in nature as texters tended to 'write like they speak', negating the need for goal setting or planning strategies. As SMS is informal in nature and follows the conventions of spoken communications, most texters also dispensed with the use of the goal setting strategy of time management when composing an SMS. This changed when the context of the SMS became more formal. High self-regulators set goals for themselves when composing an SMS text message, were more likely to think about the content of the formal SMS before beginning the writing process and took more time to compose the SMS.

High self-regulators were more likely to engage in planning activities or to use organising strategies before composing an SMS text message. These strategies included the ability to create a framework for the SMS, ask questions to focus the meaning in an SMS, refer to the guidelines for SMS in the cellular telephone manual and model SMS behaviours on others. High self-regulators in particular indicated that they would ask themselves questions to focus the meaning in an SMS for both informal and formal contexts (§6.3.2.2.2).

High self-regulators used the strategy of self-recording when composing a formal SMS. These high self-regulators employed the self-recording or monitoring strategies of keeping track of words or concepts (§6.3.2.3.1), keeping track of what must be communicated especially in formal SMSes (§6.3.2.3.2) and ensuring that the goal of the SMS has been met. The participants indicated that they would keep track of new trends in writing (§6.3.2.3.4), either to copy the writing style or to ensure that they understood the new trends in order to comprehend what is being written in the SMS text messages that they receive.

The self-evaluation strategies of asking questions regarding the content and meaning in an SMS, rereading an SMS and having an idea of how well the SMS will be understood (§6.3.2.4) were all used by high self-regulators when judging the quality of a formal or informal SMS text message.

The self-regulatory strategy of self-reaction was used by both high self-regulators and low self-regulators when they changed the style in which they wrote an SMS in order to suite the audience whom they were addressing. The self-reaction strategy of 'seeking social assistance' was used when asking the person who had sent them the SMS to clarify what

was meant in the SMS text message. The self-reaction strategy of asking for assistance was employed when the self-regulator was unable to work out what the SMS is trying to communicate. High and low self-regulators also indicated that they preferred to work out how to compose an SMS or how the cellular telephone functions rather than seeking social assistance.

High self-regulators indicated that they would employ environmental manipulation strategies when constructing an SMS which was more formal in nature and required their focussed attention. Generally speaking though, the texters did not use environmental manipulation strategies and were able to compose an SMS text message anywhere, no matter how noisy or distracting the environment.

It can thus be stated that a relationship between self-regulation and SMS does exist. This relationship depends on the nature or context of the SMS, as self-regulation comes to the fore in more formal contexts of SMS construction. The nature of the relationship between self-regulation and SMS is also dependent on the relationship the texter has with the recipient of the SMS. When the nature of the relationship between the texter and the recipient is more formal, whether the recipient of the SMS be a friend, a parent or a teacher, the use of the self-regulatory strategies of goal setting, strategic planning, self-recording, self-evaluation and self-reaction, will be more evident.

7.5 Limitations of the current study

- The first limitation identified by this researcher relates to the data collection procedures regarding SMS text messages. As the ethical considerations of this study dictated that the submission of SMS text messages for analysis was done on a voluntary basis, relatively few (n=78) SMS text messages were collected. The participants in this study indicated that they preferred to send SMS text messages through the synchronous forum of MXit. The MXit chatroom forum does not allow for messages to be saved or to be resent at a later stage making a collection of these messages almost impossible within the scope of this study. Thus the analysis of the SMS text messages in this study does not reflect the full synchronous nature of SMS language.
- The second limitation which has been identified in this study is the lack of investigation regarding the use of motivational variables in self-regulation. Due to time constraints and the fact that the researcher was interested in the processes involved in constructing an SMS, it was decided not to investigate the motivational

variables which are evident in self-regulation, in particular, in the self-regulation of writing.

- The third limitation of this study is related to the investigation of the emoticon. As emoticons are used to express emotion or to convey emotional content in an SMS, the use of emoticons as a self-regulatory strategy of imagery should also have been investigated.
- A limitation with regard to the participants' spelling age has also been identified. The spelling age of the participants were calculated, but no investigation for the reasons for high or low spelling ages was conducted.

7.6 Recommendations

7.6.1 Recommendations to improve the current research

- As most of the participants in this study indicated that they preferred to communicate informally via MXit, when communicating on a cellular telephone, a complete linguistic and orthographic analysis of the language used within the MXit context should provide a greater variety of SMS language conventions, as indicated in the review of literature. A full investigation of MXit language is thus recommended in order to fully explore the nature of SMS language.
- As this study has found that the participants' writing achievement mark was dependent on their spelling age, further research is warranted regarding what accounts for a learner's spelling age. It has been found that SMS language did not affect a participant's ability to write well or spell correctly within the context of a formal writing piece, yet there were participants with low spelling ages. Exactly why these participants exhibited low spelling ages should be investigated further in order to identify the variables which have a bearing on spelling age.

7.6.2 Recommendations for future research

- Zimmerman's (2000a) model of self-regulation identifies the self-motivational beliefs of self-efficacy, outcomes expectations, intrinsic interest/value and goal orientation as having an influence on the forethought phase of this model. The current study did not investigate the influence of these motivational aspects of self-regulation. It is thus recommended that further research be conducted regarding the influence of motivation on the construction of an SMS text message.
- A further sub-process of Zimmerman's (2000a) model of self-regulation which warrants further investigation is how the participants use emoticons as an imagery

technique in the sub-process of self-control within the performance phase of this model. Emoticons are used to express emotion or to convey emotional content, reflecting the semantic nuances of the written message (§2.7.3) and as such are seen as codified information (§3.5.2.1).

- The use of self-instruction in the performance phase of Zimmerman's (2000a) model of self-regulation also warrants further investigation, particularly regarding the participants tendency to read an SMS out loud, in order to judge meaning in the SMS, by hearing how the written word should sound.

7.6.3 Implications for schools and institutions

The implications of this study for schools and institutions lie in the value of this research. The value of this research is three-fold.

- This study offers an explanation of the nature of SMS and SMS language for this specific population. This study has been able to describe the orthographic changes that occur in SMS language and has been able to support the notion that SMS language has not infiltrated the academic writing pieces of the participants in this study, nor has it affected the manner in which these participants write within formal academic contexts. The value of this finding lies in the fact that learners are sensitized to the formal nature of academic writing. Learners are aware that the context of writing specifies specific skills regarding how one addresses the intended audience and as such, teachers should use this information to teach context specific writing skills for transactional writing.
- This study has proven that the participants' writing skills, which were indicated by an academic writing mark, were dependent on the participants' ability to spell as indicated by their spelling age. The better the academic writing mark of the participants, the higher the spelling ages that were indicated. This is a very important finding as it indicates that the spelling age of a participant has a direct influence on the participant's writing achievement. The spelling age of the participants was not affected by the influence of SMS language but by other unidentified variables. Educators should take care not to attribute low spelling ages to the perceived infiltration of SMS language, but should rather determine the causes of low spelling ages which may lay outside of the realm of SMS language conventions.
- The final value of this research lies in the fact that it was proven that the participants used self-regulatory strategies in order to adapt their writing styles when constructing SMS text messages which were more formal in nature. Participants

with high self-regulatory skills in SMS also had higher writing achievement marks, indicating that there was a relationship between writing and self-regulation in SMS. This is of particular relevance for our education system, as self-regulatory skills in SMS were indicated as a predictor for high academic writing achievement.

- The principal conclusion of this research is that although this study was completed on a very small scale and that it would be inappropriate to generalise the findings beyond the study population at hand, the implementation of and research regarding the nature of SMS and self-regulation in SMS writing, requires attention in order to ensure that the skills possessed by learners in our schools are used optimally in order to promote literacy and good writing practices. The self-regulatory skills which are associated with writing an SMS can be used within the classroom situation in order to promote writing skills and encourage the use of SMS for note taking, review of tone and register in informal and formal written pieces and the general use of editing skills in writing.

7.7 Concluding thoughts

Digital communication has changed the way in which we communicate with one another. Not only do these digital interactions (e.g. email, instant messaging and SMS) allow instant contact, but they have also brought about a revolution in what is considered 'normal' or 'standard' written language. Digital Immigrants (e.g. teachers or parents) are often concerned that the changes which are exhibited in the writing styles of the Millennials (or digital natives) will impact negatively on academic writing skills or scholastic achievement. This study has shown that learners are able to differentiate between the different contexts of social interaction and academic writing. Most importantly, these learners are able to self-regulate their writing behaviours to purposefully ensure that their academic writing and formal SMS text messages are error-free and that the register remains formal.

The creative and colloquial nature of SMS language allows the Millennial to experiment with language, a concept which is often fostered within the English language classroom. Learners are taught to edit their written work, to reflect on what they have written and to experiment with language. SMS language allows learners to use each of these self-regulating skills, within the English language class, in order to expand their literacy skills. Educators can use SMS language to teach learners that writing skills are context specific, to edit their work, to reflect on the meaning generated in writing and to experiment with language use (e.g. poetry or precise writing). Educators can also use SMS language to illustrate what should not be allowed in a formal academic essay, while giving the learners an opportunity to edit and adapt SMS text messages for formal or more appropriate contexts. Spelling rules and

specific spelling learning can also be fostered by making learners aware of the specific spelling mistakes that are made in SMS language.

SMS language is not something to be afraid of or to deride as a threat to the literacy of our youth. It is an exciting and creative form of communication which is very context specific and allows the youth to experiment with communications, forces them to think about what it is they want to say, and allows them to self-regulate their writing behaviours in order to address the needs of their intended audience. SMS language will continue to evolve. Educators should take note of the positive influences of this communication style and incorporate it into the English language class in order to make the teaching and learning experience more applicable to the milieu of the youth today.

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APPENDIX 1 :
GENERAL SURVEY OF SMS

Name (optional): _____

You are invited to participate in an investigation aimed at determining how 'Short Messaging Service' (SMS) language impacts our society today. The reason for this, is so that we can learn more about our uniquely South African experience and to determine what types of SMS messages learners use and to determine how SMS language influences our writing styles and skills.

1. Date of birth: (1)

Year	Month	Day

2. Gender (indicate with a cross in the correct box) (2)

1	2
Male	Female

3.Home language: (3)

1	2	3	4
English	Afrikaans	Tswana	Other

If you have indicated 'Other', please state which language it is that you speak. (4)

4. Place of birth: (5)

Town	Province	Country

5. Grade: (6)

1	2
Grade 10	Grade 11

6. Which primary school did you attend? (7)

School	Town	Country

7. Which high school do you attend? (8)

School	Town	Country

8. Do you have either IT or CAT as a subject? (9)

Yes		No	
-----	--	----	--

9. Do you possess a cellular telephone? (10)

Yes		No	
-----	--	----	--

If you have answered 'YES' to question 9, please complete **ALL** of the following questions. If you have answered 'NO' to question 9 then you must not answer any of the following questions.

10. If you have indicated that you do possess a cellular telephone, please indicate the Make, Model and Year (e.g. Nokia 6300, 2008). If you are not sure of the model or the year, just indicate the make. (11)

Please make use of the following rating scale in order to answer the questions:

Draw an X over the appropriate box

Example:

1. I like cake very much and eat it often.	☒	☐	☐	☐	☐
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1 – Strongly agree

2 - Agree

3 - Disagree

4 – Strongly disagree

	Strongly agree	Agree	Disagree	Strongly agree	
Uses of cellular telephones					
11. I use my cell phone primarily to send SMSes.	1	2	3	4	(12)
12. I use my cell phone primarily to make telephone calls.	1	2	3	4	(13)
13. I use my cell phone primarily to MMS.	1	2	3	4	(14)
14. I use my cellular telephone to MXit or visit chat rooms.	1	2	3	4	(15)
Language of SMS					
15. I use an abbreviated form of writing when I SMS. (e.g. c u & gr8)	1	2	3	4	(16)
16. I use acronyms or initialisms when I write an SMS (e.g. LOL, OMG or JK (just kidding))	1	2	3	4	(17)

17. I use non-standard spelling when I write an SMS (e.g. msg, nxt, evry1)	1	2	3	4	(18)
18. My SMSes often look like the spoken word (e.g. this is soooooo wrong, Dat is so sad, sigh)	1	2	3	4	(19)
19. I use capitalization in my SMS messages (e.g. this is VERY important)	1	2	3	4	(20)
20. I use punctuation correctly in my SMS messages (e.g. full stops (.)or commas (,))	1	2	3	4	(21)
21. I use punctuation in my SMS messages, for effect or emphasis (e.g. maybe..... or No!!!!!!!!!!!!)	1	2	3	4	(22)
22. I use unusual combinations of punctuation in my SMS messages (e.g. \$%@\$!)	1	2	3	4	(23)
23. I use smileys or emoticons in my SMS messages. (e.g. ;-)	1	2	3	4	(24)
24. I use personal style when composing an SMS	1	2	3	4	(25)
Recipients of SMSes					
25. I send SMSes to my parents	1	2	3	4	(26)
26. I send SMSes to my brother/s or/and sister/s.	1	2	3	4	(27)
27. I send SMSes to my cousin/s.	1	2	3	4	(28)
28. I send SMSes to my aunt/s or/and uncle/s.	1	2	3	4	(29)
29. I send SMSes to my grandparent/s.	1	2	3	4	(30)
30. I send SMSes to acquaintances (people that you know but who are not really friends).	1	2	3	4	(31)
31. I send SMSes to my friend/s.	1	2	3	4	(32)
32. I send SMSes to my girlfriend/boyfriend.	1	2	3	4	(33)
Nature of SMSes					
33. The SMSes that I send are serious.	1	2	3	4	(34)
34. The SMSes that I send are humorous.	1	2	3	4	(35)
35. The SMSes that I send are depressing.	1	2	3	4	(36)
36. The SMSes that I send are romantic	1	2	3	4	(37)
Functional categories of SMSes					
37. The SMSes that I send are in order to make practical arrangements.	1	2	3	4	(38)
38. The SMSes that I send are to ask for personal favours.	1	2	3	4	(39)
39. The SMSes that I send are to exchange practical details.	1	2	3	4	(40)
40. The SMSes that I send are to organise my social life.	1	2	3	4	(41)

41. The SMSes that I send are simple, friendly greetings.	1	2	3	4	(42)
42. The SMSes that I send are to maintain friendships.	1	2	3	4	(43)
43. The SMSes that I send are gossip.	1	2	3	4	(44)
44. The SMSes that I send are romantic messages.	1	2	3	4	(45)
45. The SMSes that I send are sexual messages.	1	2	3	4	(46)
46. The SMSes that I send are chain letters	1	2	3	4	(47)
47. The SMSes that I send are religious messages	1	2	3	4	(48)

APPENDIX 2 :

SELF-REGULATED LEARNING IN SMS

QUESTIONNAIRE

The following questionnaire consists of a number of statements related to Short Message Services (SMS). Read each statement and then mark one of the following choices on the answer sheet.

Key				
1	2	3	4	5
Not at all like me	Not very much like me	Fairly much like me	Much like me	Very much like me

Please completely cross the appropriate numbers that best describes you. For example, cross the 3 if you feel that the statement is fairly typical of you.

1	2	~~3~~	4	5
---	---	--------------	---	---

Try to rate yourself according to how well the statement describes you, not in terms of how you think you should be or what others do. There are no right or wrong answers to these statements. Please work as quickly as you can without being careless and please complete all items.

1. After writing an SMS, I have a good idea of how people will respond to what I have written.
2. I always respond to SMSes quickly.
3. When I become confused about something I am reading in an SMS, I go back and try to figure it out.
4. When I write an SMS, I take note of the important facts that I am trying to communicate.
5. I check over my SMS to make sure that it makes sense.
6. When I realise that I have not set enough time to complete an SMS, I reschedule my time.

7. When I set a goal for writing an SMS, but I can't reach that goal, I break it up into more attainable goals and work at them one at a time, until I reach my goal.
8. Before writing an SMS, I first make sure that I am clear about what I want to communicate.
9. When I realise that people may not understand what I have written in an SMS, I change the way that I write the SMS.
10. When I write an SMS, I work out how much time it will take to complete the SMS.
11. When I write an SMS, I make sure that I know how to use a cell phone pad correctly.
12. I set specific goals for each SMS that I compose.
13. If I realise that I don't understand a message, I ask someone for help.
14. Before composing an SMS, I first work out a framework for what I want to say.
15. When I have written an SMS, I usually have a good idea of how well I will be understood, before the SMS has been read.
16. I think about the content of my SMS for quite a while before composing the SMS.
17. I ask myself questions to make sure that I understand the meaning of the SMS that I have composed.
18. I try to compose my all SMSes at a constant tempo.
19. Before I begin writing an SMS, I think about all the things that I need to write a good SMS.
20. When writing an SMS, I make sure that I know how to follow the recommended guidelines for SMSing as stated in the cell phone manufacturer's instruction manual.
21. When writing an SMS, I ask myself questions regarding the content of the SMS, to check if the receiver will understand the message.
22. When I prepare myself for writing an SMS, I make sure that I know precisely what I want to say.
23. Before I write a new SMS, I skim through old SMS's to see how they are organised.
24. I prefer to set short term goals when writing an SMS.
25. After composing an SMS, I check my SMS to make certain it is correct.
26. When composing an SMS, I try to make sure that the receiver can understand my SMS.
27. Before writing an SMS, I speak to others who know more about how to write SMSes than I do.
28. When writing an SMS, I stop once in a while and go over what I have written.
29. When I write an SMS, I keep a record of concepts or words that I can't remember or don't understand.

30. While writing an SMS, I keep track of the time that it takes me to compose a message.
31. I often find that I have been reading an SMS, but I don't know what it is all about.
32. I try to change the way I write an SMS to fit the personal style of the person I am communicating with (e.g. parent, school friend or teacher).
33. Before writing an SMS, I set a goal which I plan to attain.
34. When reading other people's SMSes, I make a mental note of important trends or fashions in SMS writing.
35. When writing an SMS, I ask myself questions to focus my writing.
36. I usually check my SMS writing to see I have attained all my objectives

APPENDIX 3 : **SELF-REGULATED LEARNING IN SMS QUESTIONNAIRE: ANSWER SHEET**

Please completely cross the appropriate numbers that best describe you. For example, cross the 3 if you feel that the statement is fairly typical of you.

1	2	~~3~~	4	5
---	---	--------------	---	---

	Not at all true of me	Not very much like me	Fairly much like me	Much like me	Very much like me
1.	1	2	3	4	5
2.	1	2	3	4	5
3.	1	2	3	4	5
4.	1	2	3	4	5
5.	1	2	3	4	5
6.	1	2	3	4	5
7.	1	2	3	4	5
8.	1	2	3	4	5
9.	1	2	3	4	5
10.	1	2	3	4	5
11.	1	2	3	4	5
12.	1	2	3	4	5
13.	1	2	3	4	5
14.	1	2	3	4	5

21.	1	2	3	4	5
22.	1	2	3	4	5
23.	1	2	3	4	5
24.	1	2	3	4	5
25.	1	2	3	4	5
26.	1	2	3	4	5
27.	1	2	3	4	5
28.	1	2	3	4	5
29.	1	2	3	4	5
30.	1	2	3	4	5
31.	1	2	3	4	5
32.	1	2	3	4	5
33.	1	2	3	4	5
34.	1	2	3	4	5

15.	1	2	3	4	5
16.	1	2	3	4	5
17.	1	2	3	4	5
18.	1	2	3	4	5
19.	1	2	3	4	5
20.	1	2	3	4	5

35.	1	2	3	4	5
36.	1	2	3	4	5

APPENDIX 4 :

SCHONELL GRADED SPELLING TEST

Schonell Spelling Test

see bag	cut ten	mat hat	in dad	ran bed
leg good	dot till	pen be	yet with	hay from
time boat	call mind	help sooner	week year	pie dream
sight mistake	mouth pair	large while	might skate	brought stayed
yoke iron	island health	nerve direct	join calm	fare headache
final style	circus bargain	increase copies	slippery guest	lodge policy
view account	library earliest	cushion institution	safety similar	patient generous
orchestra appreciate	equally familiar	individual source	merely immediate	enthusiastic breathe
permanent materially	sufficient cemetery	broach leisure	customary accredited	especially fraternally
subterranean mortgage	apparatus equipped	portmanteau exaggerate	politician amateur	miscellaneous committee

Spelling Age = $\frac{\text{no. of correctly spelt words}}{10} + 5$

for example: $SA = \frac{25}{10} + 5 = 7.5 \text{ years}$

APPENDIX 5 :

SPELLING CHECKLIST FOR CREATIVE WRITING DOCUMENTS

Spelling checklist for creative writing documents

Name of candidate:	Form	Function of spelling mistake
1. Abbreviations in SMS		
2. Acronyms and initialisms		
3. Alpha-numeric homophones		
4. Simulation of the spoken word		
5. Capitalisation		
6. Punctuation		
7. Emoticons		
8. Novelties		
9. Personal style		

APPENDIX 6 :

LETTER OF PERMISSION FROM

NORTH-WEST EDUCATION DEPARTMENT

From:

To: 00219759836

08/09/2010 09:36

#504 P.001



education

Lefapha la Thuto
Onderwys Departement
Department of Education
NORTH WEST PROVINCE

First Floor:
Garona Building
Private Bag X2044,
Mmabatho 2735
Tel.: (018) 387-3429
Fax: (018) 387-3430
e-mail: piyatya@nwpg.gov.za

OFFICE OF THE SUPERINTENDENT-GENERAL

Enquiries: Ms M.J. Mogosi
018-3883433

12 August 2010

To: Mrs Candice Proudfoot
Student: North West University
Potchefstroom Campus

From: Mr M.A. Seakamela
Acting Superintendent General

**SUBJECT: REQUEST FOR PERMISSION TO CONDUCT RESEARCH ON THE
ANALYSIS OF THE RELATIONSHIP BETWEEN WRITING SKILLS
AND SMS LANGUAGE**

Please be informed that permission has been granted for you to conduct research at
Conrad's College in Klerksdorp related to the afore mentioned theme

Approval is therefore granted under the following conditions:

- That consultation with the schools identified is done
- That any publication of information pertaining to the department should
be done with the permission from the department
- That learning and teaching process is not compromised
- That service delivery is not compromised
- That the department be favoured with the outcomes of the research

Wishing you well in your studies

Regards

Mr M.A. Seakamela
Acting Superintendent General

"TOGETHER, DOING MORE, BETTER"

APPENDIX 7 : ETHICS APPROVAL OF PROJECT



NORTH-WEST UNIVERSITY
YUNIBESITHI YA BOKONE BOPHIRIMA
NOORDWES-UNIVERSITEIT

Private Bag X6001, Potchefstroom
South Africa 2520

Tel: (018) 299-4900
Faks: (018) 299-4910
Web: <http://www.nwu.ac.za>

Ethics Committee

Tel: +27 18 299 4850
Fax: +27 18 293 5329
Email: Ethics@nwu.ac.za

Prof JL Monteith

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	An analysis of the relationship between writing skills and 'Short Messaging Service' language: a self-regulatory perspective
Student working on project:	C Proudfoot
Ethics number:	N W U - 0 0 0 1 2 - 1 0 - A 2
Approval date:	2010-02-18
Expiry date:	2015-02-17

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 MMJ Lowes
(chair NWU Ethics Committee)

APPENDIX 8 :

Compact Disc
