

Pertinence and alignment of educational level requirements in assessment: The case of chartered accountancy programmes in South Africa

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THESIS SUMMARY

Key words:

Accounting education, assessment, constructive alignment, professional accounting programmes, learning outcomes, revised Bloom's Taxonomy, SAICA

It has been shown that accounting graduates need a broad set of skills for entry into the profession. Students have to be able to apply knowledge in the workplace instead of merely accumulating knowledge during their years of study. The accounting profession requires critical thinking and application of knowledge, but students often struggle to perform at higher cognitive levels. Higher education requires that students should be tested for higher-order cognitive skills, yet the majority of questions often only test the lower order skills, focusing on recall of facts instead of processing skills. These skills should be reflected in the learning outcomes. Learning outcomes should include the analysis, synthesis and evaluation levels of Bloom's Taxonomy, as these encourage critical thinking. Learning outcomes in the training of South African Chartered Accountants (CA(SA)) are, however, also influenced by the competency framework of the South African Institute of Chartered Accountants (SAICA), as this prescribes curricular content which is much more specific regarding the knowledge expected of the candidates. Other stakeholders in this process include the Council on Higher Education (CHE) and the policies and guidelines of the universities themselves.

Learning outcomes also serve as the starting point of constructive alignment, and constructive alignment can be successful only if the learning outcomes are stated clearly and precisely. Constructive alignment implies that the whole process, including the module outcomes, learning outcomes, teaching activities and assessments, are aligned and follow one on the other. Previous research has shown that modules which are constructively aligned improves student learning. The alignment of the learning outcomes with the assessments is the basic principle of constructive alignment. Constructive alignment, therefore, requires learning outcomes to be consistent with how the content of the module is assessed. Despite the importance of constructive alignment, educators often do not pay enough attention to the alignment of their modules, and even professional accounting bodies do not always align their stated learning outcomes and assessments.

The aim of this study was threefold: i) to provide an understanding of the process of module development in CA programmes at South African universities, ii) to evaluate the cognitive levels of the stated learning outcomes and the summative assessments of these universities,

and iii) to evaluate the constructive alignment within MAF modules at SAICA-accredited universities.

The study aimed to provide a framework explaining the process, as well as the institutional frameworks and educational-level descriptors that influence the elements within the process. This will ensure that the elements of the process are at the appropriate educational levels. Furthermore, given the apparent focus on lower-level cognitive skills in learning outcomes, this study aimed to investigate the cognitive level of the knowledge-related learning outcomes of Management Accounting and Financial Management (MAF) modules presented in professional accounting programmes at South African SAICA-accredited universities. A total of 1 838 learning outcomes and 418 assessment items of six South African SAICA-accredited universities were analysed and categorised according to the cognitive levels of the revised Bloom's Taxonomy. The data were analysed in four ways: (i) An average cognitive level was calculated based on the revised Bloom's Taxonomy, (ii) the distributions between cognitive levels were established, (iii) the distributions of the Bloom levels were compared for the academic year levels and for Management Accounting and Financial Management, and (iv) the frequency of the verbs used in the learning outcomes was determined. A framework for the interpretation of the revised Bloom's Taxonomy for the discipline of MAF, including the level, typical knowledge and method requirements, and the typical action verbs used for the specific level, was developed. The coding categories were labelled as: 1) remember, 2) understand, 3) apply, 4) analyse, 5) evaluate, and 6) create. The cognitive levels of the learning outcomes and assessment items were used to test the alignment between learning outcomes and assessment items in MAF modules in CA programmes.

The results varied across universities and showed that, although there is a shift in the cognitive levels of skills required from students as they progress from second year to fourth year, learning outcomes seem to be at too low cognitive levels of learning. The lower-order skills (remembering and understanding) and application of knowledge dominated the learning outcomes of most universities. This is not in line with the expectations of the industry which expects critical thinking and other higher-order cognitive skills from candidates.

The results also showed little alignment between the stated learning outcomes and assessment items of the MAF modules. The assessments were at higher cognitive levels than the learning outcomes. The university assessments were also more closely aligned to the learning outcomes of SAICA than to the university's learning outcomes. This implies that

universities tend to focus more on the outcomes provided in the competency framework of SAICA in setting their assessments than on university learning outcomes.

The study offers some insights into the educational-level requirements applicable to modules in CA programmes at South African universities and the application of the revised Bloom's Taxonomy in the subject area of MAF. It also provides a framework that can be utilised for the development and classification of learning outcomes and assessments.

LIST OF ABBREVIATIONS, SYMBOLS AND ACRONYMS

AAA	American Accounting Association
AICPA	American Institute of Certified Public Accountants
APC	Assessment of professional competence
AQ	Assessment questions
CA	Chartered accountant
CA(SA)	Chartered accountant South Africa
CAPM	Capital Asset Pricing Model
CBE	Competency-based education
CHE	Council on Higher Education
CIMA	Chartered Institute of Management Accountants
CTA	Certificate in the Theory of Accounting
ETQA	Education and Training Quality Assurer
HEQC	Higher Education Quality Committee
HOD	Head of Department
IFAC	International Federation of Accountants
ILO	Intended learning outcomes
IMA	Institute of Management Accountants
ITC	Initial test of competence
LO	Learning outcomes
MAF	Management Accounting and Finance
NQF	National Qualifications Framework
NRF	National Research Foundation
NWU	North-West University
OBE	Outcomes-based education
<i>p</i> -value	Statistical significance
QAA	Quality Assurance Agency
SAICA	South African Institute of Chartered Accountants
SAIPA	South African Institute of Professional Accountants
SAQA	South African Qualifications Authority
SOAIS	School of Accountancy and Information Systems
SoTL	Scholarship of Teaching and Learning
SPSS	Statistical Package for the Social Sciences
TQEF	Teaching Quality Enhancement Fund
<i>t</i> -test	Levene's statistical test of comparing two means

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CHAPTER 1:

INTRODUCTION

1.1 INTRODUCTION

Graduates of higher education institutions in South Africa are expected to meet the standards set by the Higher Education Quality Committee (HEQC) and the South African Qualifications Authority (SAQA). Therefore, they need to have the skills and attributes as set out in the National Qualifications Framework (NQF) level descriptors provided by SAQA. According to SAQA (2012), a level descriptor describes a certain level of knowledge and learning achievement required of a learner to obtain a certain qualification.

Graduates of professional degree programmes also need to meet the standards as set out by the professional bodies. Stout *et al.* (2005:398) state that planning and developing a programme should be stakeholder based, taking into account the perspectives of both internal and external stakeholders. A typical accounting programme will be influenced internally by institutional documents, as well as externally by stakeholders such as accounting firms, alumni and professional accounting bodies (Stout *et al.*, 2005:398). Professional accounting bodies provide their members with competency guidelines, such as the competency framework document of the South African Institute of Chartered Accountants (SAICA). Professional bodies have a high degree of influence over professional degree programmes, impacting on content, teaching methods and assessments (Van der Merwe *et al.*, 2014:279).

In South Africa, SAQA delegates the quality assurance of the chartered accountancy qualification to SAICA, which accredits certain universities that meet the required standards (Van der Merwe *et al.*, 2014:279). This accreditation is based on SAICA's competency framework that describes the competencies that a South African Chartered Accountant (CA(SA)) should have upon entry into the profession. However, this could lead to universities' basing their curriculums and assessments on the SAICA competency framework instead of the HEQC standards, resulting in more focus on technical complexity and less on critical thinking (Van der Merwe *et al.*, 2014:279). Peach (2010:450) warns that academic knowledge has become less predominant, making way for a preference of professional and practical forms of knowledge. Sangster (2010:323) adds by stating that accounting curriculums are often dominated by what "needs to be learned" instead of how to apply knowledge and develop critical thinking skills and the ability to reflect. Success in higher

education pertains not only to what students have learned, but also to what they can do with their knowledge (Crowe *et al.*, 2008:368).

Curriculums of university programmes leading to a professional qualification go beyond the mere acquisition and recall of knowledge. The objectives are usually qualitative and complex and will likely be context dependent (Herbert *et al.*, 2009:21). Curriculums should be well-defined courses of study that show objectives, learning outcomes, instructional material, learning activities and assessments (Ahmed *et al.*, 2014:12). Module objectives and learning outcomes form the basis for the teaching and learning process in any module (Ragan & Ragan, 2004:19). General module objectives might be abstracted from a variety of sources such as institutional guidelines, accrediting bodies, etc., and should be supported by more detailed learning outcomes (Ragan & Ragan, 2004:20).

According to Williams (2013:22), one of the greatest challenges that universities face is formulating learning outcomes that clearly state what is expected of the learner and the content of the learning that will take place. Learning outcomes can be defined as that which the learner is expected to know, understand or be able to do after completing a module, as well as how that learning needs to be demonstrated (Gainen & Locatelli, 1995:43; Moon, 2002:17). Learning outcomes allow accurate descriptions of what will be learned in a certain module and exactly how this can be assessed (Williams, 2013:22).

The ultimate goal of teaching is for students to learn what they are meant to learn (Brabrand & Dahl, 2008:4). Course or module design has traditionally focused on the content of a module and not on students' learning as a result of the module. This has often resulted in confusion, as students are not certain what are expected of them (Light *et al.*, 2009:81). According to Herbert *et al.* (2009:21), the extent to which learners will learn what they are supposed to learn depends on two things: first, the extent to which learners are able to internalise the learning outcomes and, secondly, the degree to which the teaching activities and assessments actually reflect the stated learning outcomes. This is referred to as constructive alignment. Palm and Bisman (2010:196) propose constructive alignment as a means of redressing the criticisms against accounting education. Herbert *et al.* (2009:27), however, warn that the potential for drift between curriculum and assessment becomes particularly acute when professional bodies are involved.

Herbert *et al.* (2009:23) state that a common conceptual framework is a necessity in order to maintain alignment and that the best known framework in this regard is Bloom's Taxonomy.

According to this taxonomy, learning progresses through six stages: knowledge, comprehension, application, analysis, synthesis and evaluation (Bloom *et al.*, 1956).

Assessment is the most important stage in determining whether students have reached the intended outcomes (Jones *et al.*, 2009:1). Research on assessment has shown that curriculums should be driven by learning outcomes. Furthermore, alignment between the learning outcomes and assessments is important to ensure validity and fairness of assessments (Lucas *et al.*, 2014:578). Summative assessments should be in line with the learning outcomes and include questions on the different cognitive levels of Bloom's Taxonomy (Lucas *et al.*, 2014:563). An understanding of module objectives, learning outcomes and the different cognitive levels with their associated verbs is, therefore, fundamental for course design and development of assessment tools (Ragan & Ragan, 2004: 24).

1.2 BACKGROUND

1.2.1 Competency-based education

The aim of a competency-based approach to education is that the student acquires the competencies and skills needed to enter the profession (Wessels & Roos, 2009:148). Herring and Williams (2000:3) refer to this as a curriculum driven by objectives. Gainen and Locatelli (1995:15) also stress the fact that a programme has to have clearly stated, measurable objectives in the curriculum for optimal assessment (Wessels & Roos, 2009:148). However, Wessels and Roos (2009:152) warn that, although accounting associations have changed to a competency-based approach, universities have not adapted the way in which they develop, deliver and assess syllabuses in line with this approach.

1.2.2 Education in South Africa

Earlier research has shown a lack of quality in South African education. According to studies, learners possess limited creative abilities and lack the ability to solve problems (Botha, 1999:52; Watkins, 1997:164). Outcomes-based education (OBE) was introduced in South Africa by the Ministry of Education in 1997 mainly to address the issue of quality in South African education and as a response to international trends in educational development. According to Dimmock (1990:201), quality in education can be enhanced by the teacher, the learner and the curriculum.

In 2012 SAQA published a document containing the ten levels of achievement to be used in the development and evaluation of qualifications for registration on the NQF. In this document SAQA states that the philosophical foundation of the NQF and the level descriptors are applied competence, which is in line with the concept of OBE. Exit-level outcomes, referred to as level descriptors, are presented for each of the ten levels with the purpose of establishing consistency in learning achievements and ensuring that qualifications are comparable (SAQA, 2012:4). Level descriptors describe the achievement expected of a learner at the end of a given level of study (Moon, 2002:16) and assist educators in formulating module outcomes and assessment criteria (SAQA, 2012:5).

1.2.3 Chartered Accountancy in South Africa

In order to qualify as a CA(SA) a candidate has to enrol for a BCom Accounting or equivalent degree with a SAICA-accredited university. After completion of the BCom degree the candidate is required to complete the Certificate in the Theory of Accounting (CTA), also at a SAICA-accredited university. This is often presented in the form of an honours degree. Upon completion of the CTA the candidate is required to enter into a three-year training contract with a registered training office (SAICA, 2015).

In 2008 SAICA changed from a knowledge-based approach to a competency-based approach with the introduction of their competency framework. This document describes the professional competencies that a CA should have upon entry into the profession (SAICA, 2014). The document provides detailed information upon which educational institutions base their learning programmes for prospective CA students and their assessment of the core competencies. SAICA's competency framework also provides guidelines for academic institutions for preparing their students for the first standard setting examination that they have to pass after completing the CTA. These guidelines include the following competency areas: strategy, risk management and governance, financial management, auditing and assurance, accounting and external reporting, taxation, and management decision making and control. Competency is defined as "the particular tasks that CAs perform while applying, or bringing to bear, the pervasive qualities and skills that are characteristic of CAs to the level of proficiency defined as appropriate by the profession" (SAICA, 2014:16). The levels of proficiency are explained in the competency framework and indicate the levels of proficiency required for each competency (SAICA, 2014:19).

1.2.4 Aims, module outcomes and learning outcomes

Clarifying the goal or aim of the module and translating these into learning outcomes are crucial steps in preparing for assessment (Gainen & Locatelli, 1995:43). Moon (2002:16) defines the aim as “the general direction or orientation of the module in terms of its contents and sometimes its context within a programme”. These goals or aims should be in line with the mission of the university and with the aims as set out by the accounting bodies or institutions (Gainen & Locatelli, 1995:43).

According to Watty *et al.* (2014:463), quality in higher education is achieved when modules are aligned to programme and module outcomes, learning outcomes are aligned to learning standards and linked to learning activities, and assessments are reliable and valid. Module outcomes and learning outcomes form the basis for the teaching and learning process in any module (Ragan & Ragan, 2004:19). In South Africa a distinction is drawn between module outcomes and learning outcomes (Khoza, 2013:1). Bezuidenhout (2008:6) refers to these outcomes as overall course outcomes and chapter outcomes respectively.

Module outcomes should be linked to the twelve generic level descriptors provided by SAQA (refer to paragraph 3.3.2, page 51). In order for a course or module to be recognised in South Africa, it has to be guided by at least one of these critical learning outcomes (Khoza, 2013:1). It should be noted that the SAQA level descriptors provide general guidance for the development of the module outcomes and do not prescribe curricular content (Van der Merwe *et al.*, 2014:279). Module outcomes might also be guided by a variety of sources such as institutional guidelines, accrediting bodies, etc., and these outcomes provide the foundation for the design of a curriculum (Ragan & Ragan, 2004:27).

General module outcomes should be supported by more specific learning outcomes (Ragan & Ragan, 2004:20). Learning outcomes are more specific than the aim of the module (Light *et al.*, 2009:82) and can be defined as that which the learner is expected to know, understand or be able to do after completing a module, as well as how that learning should be demonstrated (Gainen & Locatelli, 1995:43; Moon, 2002:17; Ragan & Ragan, 2004:19). Similarly, Hussey and Smith (2002:223) define learning outcomes as a precise specification of knowledge and skills. Therefore, learning outcomes have to be precise and specific statements of knowledge, understanding, abilities and skills required which can be assessed objectively. Also, learning outcomes need to be formulated in such a way that they clearly indicate the verb at the appropriate level of understanding or performance required, the topic content that should be addressed and the context in which the verb is to be used (Biggs & Tang, 2009:83).

An understanding of module outcomes, learning outcomes and the different cognitive levels is fundamental for course design and development of assessment tools (Ragan & Ragan, 2004:24).

1.2.5 Bloom's Taxonomy

Different levels of mastery are required from students in the process of learning (Dunham *et al.*, 2015:2). Teachers need a classification of these levels of mastery in order to assess their students' learning. Taxonomies of learning, such as the well-known Bloom's Taxonomy of Educational Objectives, provide a tool to measure students' thinking and learning (Forehand, 2005). The learning outcomes in the cognitive domain of Bloom's Taxonomy are knowledge, comprehension, application, analysis, synthesis and evaluation. These outcomes can be grouped into two categories, namely lower-order and higher-order outcomes. The lower-order outcomes are knowledge and comprehension. These outcomes do not require students to apply or use the knowledge they have obtained. The higher-order outcomes are application, analysis, synthesis and evaluation and require students to use, adapt or apply their knowledge by combining knowledge and skills (Bloom *et al.*, 1956). Assessment of the outcomes in the two groups of outcomes also differs in that the lower-order outcomes usually require a single correct answer, whereas the higher-order outcomes do not have a single correct answer (Bloom *et al.*, 1956; Gainen & Locatelli, 1995:46).

Bloom's Taxonomy is used throughout the entire educational process, from setting the objectives to deciding on the teaching activities and assessments in order to reach these objectives. One of the most important uses of Bloom's Taxonomy is the analysis of learning outcomes and assessments in order to determine the breadth, or lack thereof, across the six categories (Amer, 2006:215; Krathwohl, 2002:213).

1.2.6 Constructive alignment

According to the physiological theories of constructivism and social constructivism, learning is an ongoing process in which students construct their own understanding of the material, based on past or current knowledge, through their own individual activities or during social activity (Biggs & Tang, 2009:21; Mostyn, 2012:230; Nygaard & Belluigi, 2011:659; Tuckman & Monetti, 2011:311). In order for an assessment process to be constructive, the entire programme has to be constructively aligned (Biggs, 1999:11). Constructive alignment implies that the whole process, including curriculum, assessment criteria, learning outcomes, teaching methods and assessment methods be interrelated and follow on one from another (Rust *et al.*, 2005:232).

Learning outcomes are central to the whole process of constructive alignment (Biggs & Tang, 2009:60). Learning outcomes make it possible to describe precisely what will be learned in a certain module and exactly how the learning can be assessed (Hussey & Smith, 2002:224). Learning outcomes are derived from various sources such as institutional policies, course-accrediting bodies, industry, professional bodies and academic staff (Palmer, 2004:195).

Constructive alignment can be successful only if the learning outcomes are stated clearly and precisely (Biggs, 1999:11) and if it is consistent with the delivery and assessment of the module (Blumberg, 2009:93). The alignment between learning outcomes and assessment is the most important part of constructive alignment (Bloxham & Boyd, 2011a:27).

1.2.7 Assessment and learning

In recent years there has been a move towards the concept of “assessment for learning”. Gibbs and Simpson (2004:3) argue that the focus should shift from the reliability of assessment to the assurance that worthwhile learning has taken place in the process. Rowntree (1987) claims that assessment is probably the most important variable to affect students’ learning approaches. Therefore, assessment plays a vital role in the approach towards learning that a student will adopt.

The two approaches that students follow towards learning are the deep learning and surface learning approaches (Biggs & Tang, 2009:22; Bloxham & Boyd, 2011a:17; Ramsden, 2003). The surface approach to learning occurs when the student tries to accomplish the task with as little effort as possible or without understanding the material, while the deep approach to learning is when the student uses the most suitable cognitive activities in the completion of the task, relates information and ideas together, and deals with the task suitably and meaningfully (Biggs & Tang, 2009:24). Research has shown that more than 60% of accounting students adopt the surface approach to learning, which means that students would probably not have the knowledge, skills and competencies required in the workplace (Byrne & Flood, 2004). Consequently, students would have a lower understanding of concepts and lack the knowledge, skills and competencies required for the accounting profession. However, research has shown that students might change their favoured approach to learning as a result of assessment (Scouller, 1998:454).

1.3 MOTIVATION

Higher education institutions have to develop a way to determine the quality, relevance and effectiveness of their curriculums (Ahmed *et al.*, 2014:12). As mentioned above, Watty *et al.* (2014:463) view quality in higher education as modules’ being aligned to programme and

module objectives, learning outcomes' being aligned to learning standards and linked to learning activities, and assessments' being reliable and valid. Module outcomes and learning outcomes have to be specified by the lecturer in a form that can guide learning and assessment before the assessments are developed (Ragan & Ragan, 2004:19).

For their learning students do not rely only on information that is communicated during lectures, but also on printed information such as learning outcomes and assessments (Palm & Bisman, 2010:185). There is strong motivation for students to perform well in the summative examinations; therefore, the cognitive level of these examinations will influence how the students study and learn (Crowe *et al.*, 2008:368; Gardiner, 1994; Scouller, 1998). However, not enough emphasis has been placed on the alignment of assessment methods with learning outcomes (Crowe *et al.*, 2008:266). Where most faculties design learning outcomes for their modules, many of them struggle with evaluating whether their assessments measure the students' actual achievement of these goals (Crowe *et al.*, 2008:379).

The lack of alignment between learning outcomes and assessment in accounting modules has also been evidenced (Mladenovic, 2000:144; Palm & Bisman, 2010). Watty *et al.* (2014:474) found that a process of social moderation or collaboration between accounting academics improved a shared understanding of learning outcomes and helped them to design valid assessments. This process could also assist in achieving comparable learning outcomes for accounting graduates regardless of the higher education institution they attend. As mentioned previously, Ragan and Ragan (2004:19) stress the importance of specifying module outcomes and learning outcomes in a form that can guide learning and assessment before the assessments are developed. Byrne *et al.* (2009:162) argue that, if accounting educators want their students to achieve the stated learning outcomes, they have to encourage deep learning in their students by ensuring constructive alignment of the curriculum, teaching and assessment.

The level of examinations has a direct impact on students' level of learning throughout a particular course (Jensen *et al.*, 2014:308). Research has shown that literacy and thinking can be enhanced when examination questions are set at the higher cognitive levels of Bloom's Taxonomy (Bush *et al.*, 2014:3). Jones *et al.* (2009:4) contend that, by using a blend of higher-order and lower-order questions, students' reasoning and problem-solving skills can be improved. Yet, according to Bloom *et al.* (1956), educators tend to focus on lower-order skills 80% to 90% of the time.

Although taxonomies of learning, and specifically Bloom's Taxonomy, have been applied widely in school education, their use in higher education has been limited (Dunham *et al.*, 2015:5). Bloom's Taxonomy has been applied to develop the learning outcomes in a computer science course prior to assessment to strengthen the assessment process (Starr *et al.*, 2008:261). Other studies tested examination papers according to the levels of Bloom's Taxonomy (Crowe *et al.*, 2008; Johnson & Fuller, 2006; Jones *et al.*, 2009; Momsen *et al.*, 2010; 2013; Oliver *et al.*, 2004; Swart, 2010; Thompson *et al.*, 2008; Yap *et al.*, 2014; Zheng *et al.*, 2008). The results showed alignment between the learning outcomes and examination papers in some instances, but little association in other cases.

Bloom's Taxonomy was also applied to analyse learning outcomes according to the different cognitive levels (Brabrand & Dahl, 2008; Lakshmi, 2013; Momsen *et al.*, 2010; Williams, 2013; Yap *et al.*, 2014). These studies found that the majority of the learning outcomes were in the lower cognitive levels. Although educators' goal might be to test students at all the levels of cognitive skills, it seems as if students are not provided with enough exercise on how to use content and skills at the higher cognitive levels (Crowe *et al.*, 2008:379).

Bloom's Taxonomy has been applied to a wide variety of subject areas (Forehand, 2005), and it has been suggested that each subject discipline contextualise the classifications for their specific field (Crowe *et al.*, 2008:369). Some of the disciplines in which Bloom's Taxonomy has been applied include human resource management (Brewer & Brewer, 2010), economics (Karns *et al.*, 1983), entrepreneurship (Leach, 2007), marketing (Dwyer & Klebba, 1980; Warren, 1992), biology (Crowe *et al.*, 2008; Momsen *et al.*, 2010), engineering (Ahmed *et al.*, 2014; Jones *et al.*, 2009; Kukk & Heikkinen, 2015; Swart, 2010), computer science (Johnson & Fuller, 2006; Oliver *et al.*, 2004; Thompson *et al.*, 2008; Williams, 2013) and statistics (Dunham *et al.*, 2015; Garfield *et al.*, 2011). Only a few studies have focused on the application of Bloom's Taxonomy in the discipline of accountancy (Davidson & Baldwin, 2005; Debreceeny & Farewell, 2010; Yap *et al.*, 2014) and finance (Lakshmi, 2013).

Despite its advantages, constructive alignment is often taken for granted and does not receive enough attention when courses are designed. Learning outcomes are the drivers of constructive alignment and should be aligned with the way in which the course is delivered and assessed. Alignment between the objectives, learning activities and assessment exercises provides students with direction and clarity and, ultimately, leads to increased learning (Blumberg, 2009:93). However, it has been shown that instructors do not necessarily check for course alignment. Bloxham and Boyd (2011a:27) indicate that the alignment of the learning outcomes with the assessment tasks is the basic principle of

constructive alignment. Constructive alignment, therefore, emphasises the importance of learning outcomes. Researchers agree that constructive alignment can be successful only if the learning outcomes are meaningful and specified clearly (Biggs, 1999:11; Light *et al.*, 2009:81; Thota & Whitfield, 2010:106).

Furthermore, higher education requires that students be tested for higher-order cognitive skills (Crowe *et al.*, 2008:379), but often the majority of questions only test lower-order skills (Crowe *et al.*, 2008:379), focusing on recall of facts instead of processing skills (Momsen *et al.*, 2013). Industry requires critical thinking and application of knowledge, yet students often struggle to perform at the higher cognitive levels (Crowe *et al.*, 2008:368; Zoller, 1993).

Bloom's Taxonomy has been applied to develop learning outcomes, analyse the cognitive levels of learning outcomes and the cognitive levels of assessments in a wide variety of subject areas. The use thereof in higher education and in accounting education has however been limited. Furthermore, the classifications of Bloom's Taxonomy have been contextualised for some subject areas but no classifications have been provided for accounting education and more specifically the disciplines of Management Accounting and Financial Management. This study aims to fill this gap in the body of knowledge by contextualising the classifications of Bloom's Taxonomy for Management Accounting and Financial Management and applying the taxonomy in the subject area of Management Accounting and Financial Management in CA programmes in South Africa in order to analyse the cognitive levels of learning outcomes and assessments and evaluate the alignment between the learning outcomes and assessments.

1.4 PROBLEM STATEMENT

In light of the above discussion, there is an apparent focus on lower-level cognitive skills in learning outcomes and assessments and a lack of alignment between learning outcomes and assessments in higher education. Given the educational level descriptors of the internal and external stakeholders involved in chartered accountancy programmes (CA programmes) at South African universities, the cognitive levels of learning outcomes and assessment questions in CA programmes at South African universities need to be at appropriate cognitive levels and have to be aligned with the assessment questions given the relevant educational frameworks.

Given the above, the research problem that this study aimed to address was threefold:

- Which educational frameworks drive the levels of the different elements in the educational process in modules in CA programmes at South African universities?

- Are the cognitive levels of the stated learning outcomes and assessment questions in these modules appropriate for the given levels of study, given the apparent focus on lower-level cognitive skills in learning outcomes and assessments?
- Are the assessments of these modules aligned to the stated learning outcomes?

1.5 RESEARCH OBJECTIVES

This research embraced general and specific objectives.

1.5.1 Primary objective

To evaluate the pertinence and alignment of educational level requirements to learning outcomes and summative assessments in CA programmes at SAICA-accredited South African universities.

1.5.2 Secondary objectives

In order to reach the primary objective the following secondary objectives needed to be addressed:

- 1.5.2.1 *To contextualise from the literature the training of CAs at South African universities within the higher educational system (chapter 3, page 46);*
- 1.5.2.2 *To conceptualise from the literature the process of developing outcomes considering the role of SAQA, SAICA and institutional policies, as well as other conceptual frameworks such as taxonomies of learning (chapter 4, page 66);*
- 1.5.2.3 *To consider the application of assessment in professional training in higher education, as well as the principles that should be adhered to when setting and delivering assessments (chapter 5, page 104);*
- 1.5.2.4 *To conceptualise the process of constructive alignment and its role in enhancing student learning (chapter 6, page 124);*
- 1.5.2.5 *To critically analyse the process of developing learning outcomes and setting assessments for the training of CAs at South African universities (chapter 8, page 164);*

- 1.5.2.6 ***To provide a framework for the development of module outcomes, learning outcomes and assessments for modules within CA programmes (chapter 8, page 164);***
- 1.5.2.7 ***To develop an appropriate framework for applying a taxonomy of learning in the discipline of Management Accounting and Finance (MAF) (chapter 9, page 198);***
- 1.5.2.8 ***To critically evaluate the application of the pertinent educational level requirements by (chapter 9, page 198):***
- Evaluating the cognitive levels of the competencies in the SAICA competency framework by applying the developed framework for application of a taxonomy of learning in the MAF discipline;
 - Evaluating the cognitive levels of the set learning outcomes by applying the developed framework for application of a taxonomy of learning in the MAF discipline; and
 - Evaluating the cognitive levels of the summative assessments by applying the developed framework for application of a taxonomy of learning in the MAF discipline;
- 1.5.2.9 ***To critically evaluate the constructive alignment of educational level requirements throughout the learning assessment process (chapter 10, page 270); and***
- 1.5.2.10 ***To provide recommendations for ensuring constructive alignment in modules within CA programmes (chapter 11, page 282).***

1.6 RESEARCH METHODOLOGY

In order to reach the above outcomes, both a thorough literature review and empirical study was necessary. The literature review and the empirical study are discussed in more detail below.

1.6.1 Literature review

The literature study entailed a detailed literature review of published academic research in the field. Furthermore, a detailed study was conducted of existing learning theories, taxonomies, level descriptors and current assessment practices in higher education and

specifically in accounting education. These theories, methods and techniques were evaluated and served as the basis for the measuring criteria applied during the empirical investigation.

The literature study aimed to achieve the following:

- To lay a sound foundation of the key principles and problems set against the background of the higher education system in South Africa and worldwide;
- To obtain detailed knowledge of educational and conceptual frameworks for developing module outcomes, learning outcomes and assessment, and implementing constructive alignment; and
- To use this new knowledge to analyse the constructive alignment in CA programmes at South African universities.

1.6.2 Empirical research

The research can be classified as qualitative and quantitative, and a mixed-method approach was used. The study was undertaken using a non-experimental research design. Programme information, including module outcomes, learning outcomes and summative assessments, was gathered from participating universities, and interviews were held with staff in the MAF departments of these universities, as well as staff members of academic support services. The empirical study entailed a critical analysis of the elements in a typical MAF module in a CA programme at a South African university using a case study approach. The internal documents of North-West University (NWU) were analysed and interviews with staff members of NWU Academic Support Services were conducted. This was done in order to develop a framework for module development in South African CA programmes based on appropriate educational and conceptual frameworks.

Learning outcomes and summative assessment questions in MAF modules in South African universities were analysed to determine the cognitive levels of learning outcomes and assessments and to establish whether summative assessment questions are aligned with the learning outcomes in MAF modules.

1.6.3 Scope of the study

The researcher is a lecturer on the CTA programme at one of the participating SAICA-accredited universities and has extensive teaching experience in the subject area of Financial Management and Management Accounting. Therefore, this study focused on MAF, as the analysis of the learning outcomes and summative assessments required an intimate

knowledge of the subject in order to have an understanding of what is expected of the student. This understanding is required for the interpretation of the learning outcomes and assessments. The scope of the study included the 15 South African universities which are accredited with SAICA to provide chartered accountancy training.

1.6.4 Methods and techniques

The methods utilised in this study included:

- An analysis of the learning outcomes and summative examination papers of the chosen universities. The cognitive levels of Bloom's Taxonomy were used for analysis and to distinguish between the higher-order and lower-order questions. Furthermore, the alignment between the assessments and the learning outcomes was examined;
- Interviews were conducted with the staff of NWU Academic Support Services in order to gain an understanding of the processes and educational requirements involved in developing programme outcomes, module outcomes, learning outcomes and assessments; and
- Interviews were conducted with staff in the MAF departments of the chosen universities in order to determine their awareness of the importance of constructive alignment.

The following data were gathered as a basis for the empirical study:

- The module outcomes for second year, third year and CTA MAF modules of the chosen universities;
- The learning outcomes of the study units within the MAF modules of these universities; and
- The summative examination papers of the MAF modules of the chosen universities.

1.7 OVERVIEW

The thesis is presented in eleven chapters as follows:

CHAPTER 1: Introduction

Chapter 1 serves as an introduction to this study and provides an overview of the background and motivation, research objectives and a brief description of the proposed research method.

CHAPTER 2: Philosophical approach to the study

Chapter 2 provides a detailed explanation of the research methodology used in this study. It explains the philosophies of research underpinning research in social sciences, as well as the approaches and strategies that might be followed in this field. The approaches that were followed in this study are highlighted and motivated in this chapter. The theories that guided this study are explained, and the methods followed in order to reach the research objectives are set out.

CHAPTER 3: Contextual background

Chapter 3 provides the context of the higher education system and accounting education within this system. The role of the different stakeholders in the training of CAs is explained. The chapter concludes with a discussion on learning and the different theories of learning.

CHAPTER 4: Developing learning outcomes in the assessment process

Chapter 4 explores the alignment of learning outcomes with educational frameworks. The chapter commences with a discussion on module development and moves on to the educational frameworks that can be applied in order to ensure learning takes place. These educational frameworks include conceptual frameworks such as Bloom's Taxonomy, which provide the basis for the empirical study.

CHAPTER 5: Assessment in the educational process

Chapter 5 addresses assessment. The chapter commences with a discussion of the purpose of assessment and provides some insight into the link between assessment and learning. The principles of assessments are addressed, and the chapter concludes with a discussion on assessment in accounting education.

CHAPTER 6: Alignment of assessments to educational learning requirements

Chapter 6 addresses constructive alignment and the importance of aligning assessments with learning outcomes and educational objectives. The chapter explains why constructive alignment is important for learning and provides a discussion of previous research on alignment.

CHAPTER 7: Research techniques and procedures applied in this study

Chapter 7 explains the data collection and analysis techniques that were used in this study. A detailed explanation and motivation for the techniques used for the two phases of the study are presented.

CHAPTER 8: Framework for developing learning outcomes and assessments in CA programmes in South Africa

In chapter 8 the results of phase 1 of the study is presented. The chapter presents the results of the analysis of NWU institutional documents and interviews with NWU Academic Support Services and academic staff members of the chosen universities. The chapter also discusses the role of SAQA and SAICA in CA programmes in South Africa and concludes with a proposed framework for the development of modules in CA programmes at South African universities.

CHAPTER 9: Evaluating the pertinence of educational level requirements

Chapter 9 investigates the pertinence of educational level requirements by analysing the cognitive levels of learning outcomes and assessment questions in MAF modules at South African universities. The chapter commences with a proposed framework for the application of the revised Bloom's Taxonomy in the MAF discipline and goes on to use this framework in analysing the learning outcomes and assessment questions of MAF modules.

CHAPTER 10: Evaluating the constructive alignment of educational level requirements throughout the learning assessment process

In chapter 10 the results of the evaluation of the alignment between learning outcomes and assessment questions of MAF modules in CA programmes are presented.

CHAPTER 11: Conclusions recommendations and reflections

Chapter 11 concludes this study. A summary of all the aspects covered in the literature study is documented. Chapter 11 then revisits the primary research objective and provides a discussion on how the secondary research objectives were achieved. This is followed by a summary of the results and conclusions of the different stages of the empirical study performed.

Recommendations are then made based on the results of the literature and empirical studies. The contribution of this study, more specifically with regard to the levels of learning outcomes and assessments in MAF modules in CA programmes and the alignment of learning outcomes to assessment questions, are then set out. Finally, the limitations of the study and areas for further research are discussed. The study concludes with some final remarks.

CHAPTER 2:

PHILOSOPHICAL APPROACH TO THE STUDY

2.1 INTRODUCTION

Research can be defined as the process of seeking solutions to life's problems (Sesay, 2011:18). Research takes place when someone asks a question and sets out to find the answer to the question. The purpose of research is, therefore, to extend the existing pool of knowledge (Sesay, 2011:18). Salkind (2014:65) concurs by stating that research is the "process through which new knowledge is discovered". In short, research is the process in which new knowledge is created when answers to questions or problems are sought.

The approaches that researchers take depend on different theories about their view of reality and how they attempt to make sense of it (Wheeldon & Åhlberg, 2012:6). Research relies on the research process, which involves stating a problem, defining the research population, selecting research methods, gathering and analysing data, and presenting the results (Glesne, 2006:4). In performing these steps researchers rely on their view of reality, or research paradigm (Wheeldon & Åhlberg, 2012:6). Researchers put the elements of the research process together differently, and it is the different approaches that allow for different results of the research process (Glesne, 2006:4).

In order to become a researcher individuals have to discover and contemplate the type of researcher they are and the type of research they wish to perform (Van der Merwe, 2014:38). Saunders *et al.* (2009) developed a framework called the "research onion" that could serve as a guide to this process of discovery. The framework has various layers, with each layer becoming more detailed from the outside in. It starts with the philosophies of research at the outermost layer and then moves on to the research approaches, strategies, choices and time horizons and, finally, ending with techniques and procedures at the centre. The research onion is illustrated in Figure 2.1.

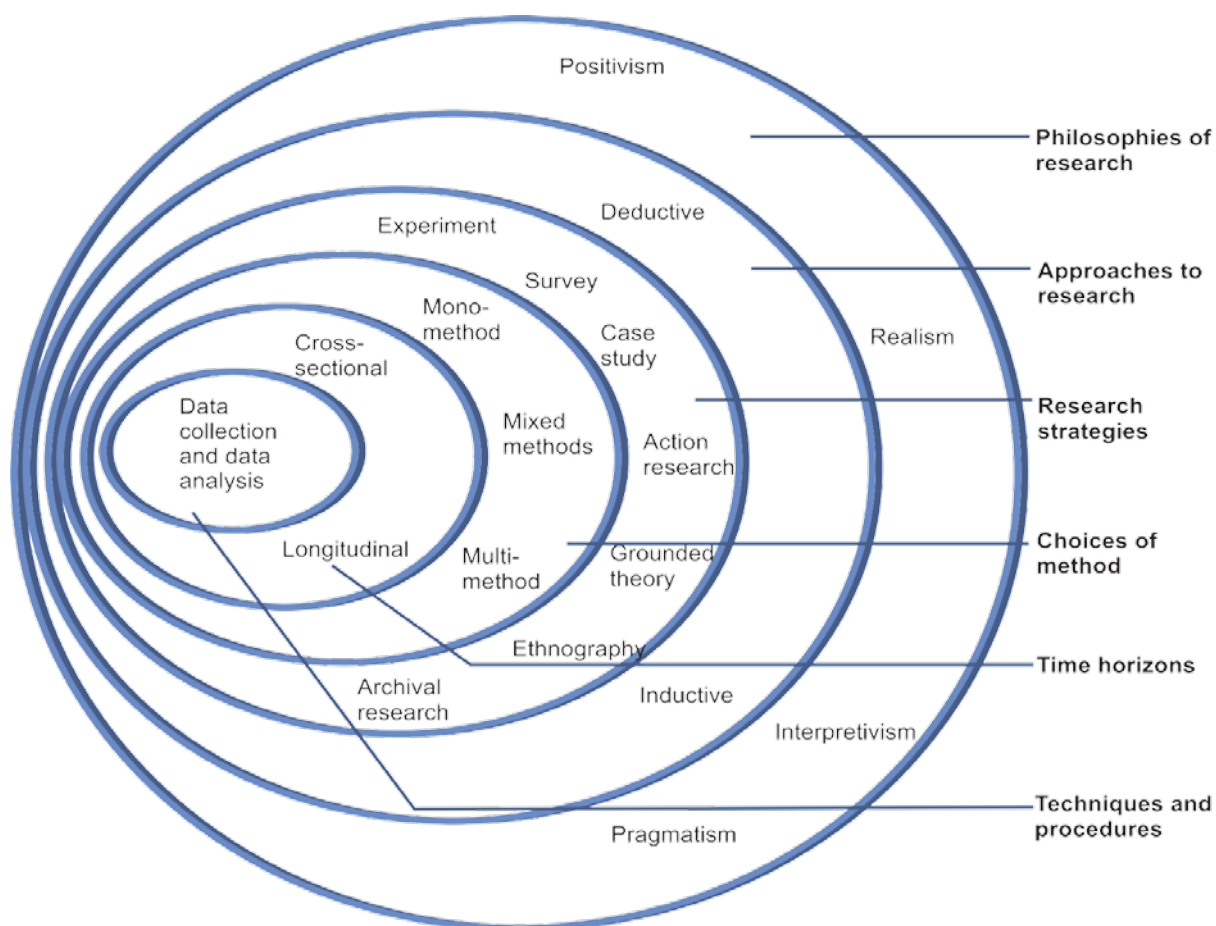


Figure 2.1: The research onion

Source: Saunders *et al.* (2009:108)

Research involves two modes of inquiry. The first is using an instrument that attempts to condense data to numbers and which is referred to as quantitative research, while the second mode of inquiry uses interviews, examination of documents or observation and is referred to as qualitative research (Glesne, 2006:4). The research onion can be used to illustrate both quantitative and qualitative research (Toloie-Eshlaghy *et al.*, 2011:107).

Every research study has to be embedded within a certain theoretical framework. Research and knowledge (theory) are interconnected in that research projects are based on existing knowledge or theories, where the results of the research, in turn, contribute and add to the body of knowledge (Johnston, 2014:211). With a theoretical framework upon which a study can be based, the researcher has a platform for planning the study according to ideas and concepts that already exist in the particular field of knowledge. It also provides a paradigm for the interpretation of the results of the research study (Maree, 2012:34).

The current study is a synthesis of different research methodologies, approaches and methods. In this chapter the detail regarding how this research was conducted will be

discussed, starting from the underlying philosophical assumptions, the methods and data collection and analysis techniques. The research design will be presented using the research onion, and the application thereof for this study will be explained. This chapter aims to enhance the understanding of the way in which this thesis is approached.

2.2 PHILOSOPHIES OF RESEARCH

The term “philosophy of research” refers to the development of knowledge and the nature of that knowledge (Saunders *et al.*, 2009:107). Research philosophy determines the way in which one views the world and, ultimately, influences the research strategy to be followed. Reflection upon the philosophical choices and the ability to defend these choices are, therefore, an imperative part of a research project (Saunders *et al.*, 2009:107) and should be the starting point of the research project (Johnston, 2014:207). To this day the seminal work of Burrell and Morgan (1979) regarding philosophical foundations provides guidance for research in social sciences (Van der Merwe, 2014:40).

2.2.1 Sociological paradigms: the Burrell and Morgan perspective

Research paradigms are the “fundamental models or frames of reference we use to organise our observation and reasoning” (Babbie, 2010:33). A paradigm is an implicit view of things and not an objective fact (Babbie, 2010:33) and serves as a map or guide for scientific communities (Glesne, 2006:6). Paradigms play a significant role in science and it is important to recognise that one is operating within a certain paradigm. This helps the researcher to not only understand the views or actions of others who are operating within another paradigm, but to also discover new ways of seeing things when stepping out of one’s own paradigm (Babbie, 2010:33; Saunders & Bezzina, 2015:2). Burrell and Morgan (1979:1) have played an important role in understanding the epistemological and ontological foundations of social sciences by presenting four paradigms which reflect the assumptions that researchers make regarding the nature of organisations (Bryman & Bell, 2011:24). They propose that all theories regarding organisations are based on a philosophy of science and a theory of society.

2.2.1.1 Assumptions about the nature of social sciences

Burrell and Morgan (1979:1) conceptualise paradigms in social sciences in terms of four sets of assumptions regarding ontology, epistemology, human nature and methodology. The four assumptions which characterise the different approaches to research are illustrated in Figure 2.2.

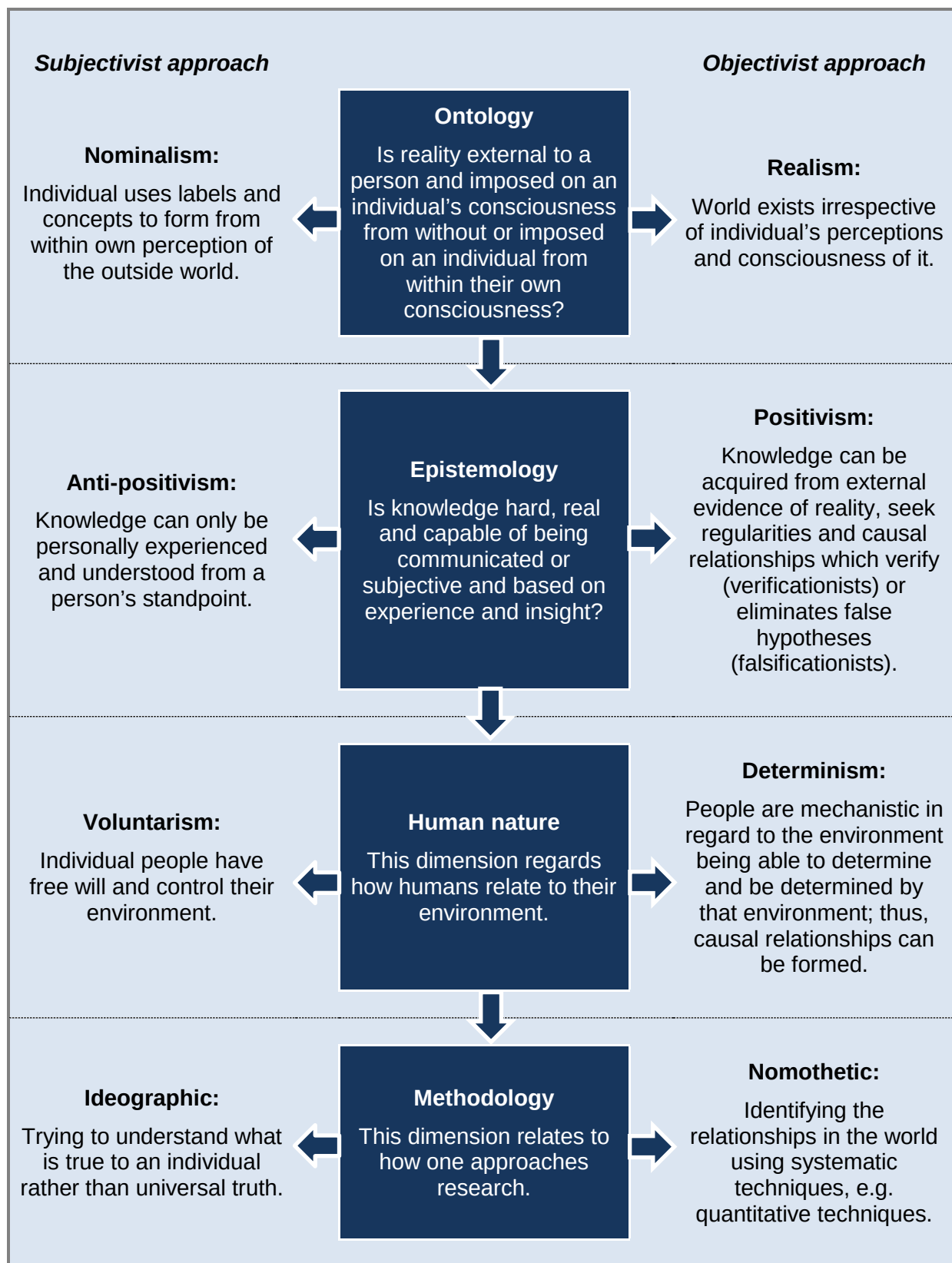


Figure 2.2: Assumptions about the nature of social sciences

Source: Burrell and Morgan (1979:3); Van der Merwe (2014:41)

Figure 2.2 (page 20) displays Burrell and Morgan's (1979:4) attempt to describe two broad and opposed perspectives of researchers' approaches to social sciences with regard to their ontological, epistemological, human and methodological standpoints. On the left-hand side of Figure 2.2, the subjectivist approach is outlined, and to the right, the objectivist approach. **Objectivist** researchers see the world from an external viewpoint: The world exists externally to the actors concerned with its existence (Saunders *et al.*, 2009:110). According to the beliefs of the objectivist researcher, the world is made up of real processes and structures (Bryman & Bell, 2011:24). The **subjectivist** researcher, on the other hand, views the world as socially constructed from the perceptions and actions of those concerned with its existence; therefore, it has to be understood from the viewpoint of being directly involved in it (Bryman & Bell, 2011:24; Saunders *et al.*, 2009:110).

As mentioned above, these perspectives of researchers are based on their ontological, epistemological, human and methodological standpoints. These four sets of assumptions will now be discussed. Ontology and epistemology shape one's paradigm (Glesne, 2006:6; Scotland, 2012:9). **Ontology** provides the philosophical stance that creates the context for research and guides the research process. Glesne (2006:6) refers to ontology as being the "theory about the nature of being" and epistemology as the "theory about the nature of knowledge". In the subjectivist approach the researcher takes on the nominal position in which the world is seen as nothing more than names, concepts and labels used to structure reality and make sense of the external world (Burrell & Morgan, 1979:4). The objectivist researcher, on the other hand, takes on the position of realism and believes that the world is made up of hard, tangible and relatively fixed structures and exists as an empirical entity. The world, therefore, has a reality of its own and exists independently of the researcher's appreciation of it (Burrell & Morgan, 1979:4).

Epistemology is derived from the Greek word *episteme* which means "truthful knowledge" (Babbie & Mouton, 2012:8). Therefore, epistemology refers to the philosophy of knowledge or "how we come to know", embedded in theoretical frameworks (Henning, 2005:15; Wheeldon & Åhlberg, 2012:5). According to Babbie and Mouton (2012:8), knowledge can be regarded as truthful if it is an accurate representation of a phenomenon in real life. Epistemology is about how knowledge can be generated, attained and communicated to others (Scotland, 2012:9). Positivist researchers seek to understand the world by searching for regularities and causal relationships between the elements that make up the world. They see the accumulation of knowledge as a process whereby new insights are added to existing knowledge and false hypotheses are eliminated (Burrell & Morgan, 1979:5). The anti-positivist researcher believes that the world can be understood only by being directly

involved in its activities; therefore, understanding comes from observing from the inside rather than from the outside (Burrell & Morgan, 1979:5). This is the subjective approach.

Burrell and Morgan (1979:2) refer to a third set of assumptions regarding **human nature** which is concerned with the relationship between human beings and the environment. The one view is that man is a product of the environment and conditioned by external influences. The other viewpoint is that man is the creator of his environment and controls the environment instead of being controlled by it (Burrell & Morgan, 1979:2). These are two extreme views and represent the debate between the advocates of determinism on the one hand and voluntarism on the other. It should be noted that these are the extremes and most scientists' assumptions will fall somewhere in between (Burrell & Morgan, 1979:2).

Because they have their own ontological and epistemological assumptions and assumptions of human nature, all paradigms have different views of reality and how knowledge is constructed. According to Scotland (2012:9), this is reflected in their methodologies and methods. Burrell and Morgan (1979:2) agree that social scientists will be influenced by the different ontologies, epistemologies and models of human nature towards different methodologies. **Methodology** differs from epistemology in that it pertains to the practical side of knowledge. It is concerned with the tools and techniques that we apply in order to understand our world (Henning, 2005:15). With epistemology the focus is on "the philosophy of how we come to know the world", whereas with methodology the focus is on "the practice of coming to know and how we study this practice" (Henning, 2005:15). Wheeldon and Åhlberg (2012:5) refer to this as "the plan of action". Scotland (2012:9) states that it is this plan of action that determines the specific methods that are chosen for a study. The choice of methodologies is extremely wide and ranges between treating the world as being hard, real and external to the researcher on the one hand and being much softer, personal and more subjective on the other hand (Burrell & Morgan, 1979:2). In the former view the focus tends to be on the study of relationships and the way in which these relationships can be expressed. Researchers who adopt this view will concentrate on the concepts, the measurement thereof and underlying themes. The other viewpoint is concerned with the way in which the individual creates, modifies and interprets the world. The focus in this case is on the unique characteristics of the individual instead of on general characteristics (Burrell & Morgan, 1979:3).

2.2.1.2 *Assumptions about the nature of society*

Each of Burrell and Morgan's four paradigms also makes assumptions about the function and purpose of research in social sciences (Bryman & Bell, 2011:24). They introduced the terms "sociology of regulation" and "sociology of radical change" to explain the different schools of thought regarding the nature of the subject under investigation (Burrell & Morgan, 1979:16). **Sociology of regulation** is concerned with the need for regulation in social affairs and understanding why society is maintained as an entity (Burrell & Morgan, 1979:17). The purpose of research would not be to make judgements regarding the world, but to suggest minor changes that might improve it instead (Bryman & Bell, 2011:24). At the other extreme, **sociology of radical change** is concerned with finding explanations for radical change, structural conflict, modes of domination and structural contradiction. It is about freeing man from the structures that inhibit his development (Burrell & Morgan, 1979:17). Research would, therefore, attempt to make judgements about the way the world should be and suggestions on how to achieve this (Bryman & Bell, 2011:24).

2.2.1.3 *The sociological paradigms*

In the previous sections the assumptions regarding the nature of social sciences and assumptions regarding the nature of society were discussed. In these discussions two dimensions were identified, namely the subjective–objective dimension and the regulation–radical change dimension. Burrell and Morgan (1979:21) used these dimensions to develop a framework of four paradigmatic positions for the analysis of social theory. The four paradigms which they labelled as radical humanist, radical structuralist, interpretive and functionalist are illustrated in Figure 2.3 below.

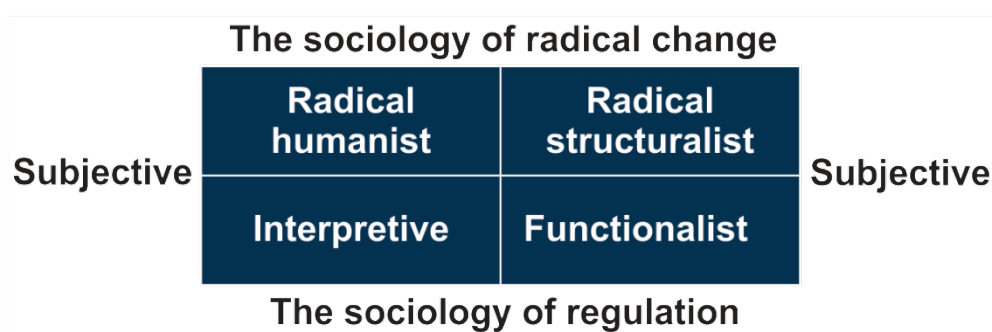


Figure 2.3: Sociological paradigms

Source: Burrell and Morgan (1979:22)

Researchers in the functionalist paradigm focus on problem solving which leads to rational explanations of social affairs (Bryman & Bell, 2011:24; Burrell & Morgan, 1979:26). The interpretative researcher views the world as a social process created by the individuals within

it. The world is not seen to exist beyond the conceptions of any single individual and, therefore, research is based on the experience of these individuals (Bryman & Bell, 2011:24; Burrell & Morgan, 1979:28). The radical humanist views the world as a social arrangement with constraints that the individual has to be released from (Bryman & Bell, 2011:24; Burrell & Morgan, 1979:32). Research in this paradigm is driven by the need for change. The radical structuralist concentrates on structural relationships within the social world and seeks to provide explanations for these interrelations. Researchers in this paradigm believe that one of the characteristics of society is conflict and that this conflict causes radical change. It is then through this conflict that man is seen to be released from structural power relationships (Burrell & Morgan, 1979:34).

Burrell and Morgan suggest that work should be examined in terms of these four sets of basic assumptions. It should be noted that researchers within each of the four paradigms could adopt different standpoints and that the four paradigms simply emphasise the similar perspectives with regard to basic assumptions that the researchers within a paradigm hold (Burrell & Morgan, 1979:23).

2.2.2 Sociological paradigms: Saunders *et al.* perspective

Saunders *et al.* (2009:108) present the philosophy of research as the outermost layer of the research onion and divides it into positivism, realism, interpretivism and pragmatism. They justify the philosophy of research being presented as the outermost layer, as this determines the way in which the research is approached. Similar to Burrell and Morgan (1979), they also refer to the objectivist and subjectivist approach. In the following section these paradigms will be discussed as set out by Saunders *et al.* (2009) in the research onion.

According to the **positivist paradigm**, the world can be studied through scientific methods (Babbie, 2010:34; Wheeldon & Åhlberg, 2012:6). Philosophers supporting the positivist paradigm assume that the same methodology as applied in natural sciences should be applied in social sciences. They believe that great advances have been made in natural sciences, but that social sciences lack these advances and should, therefore, adopt the methodologies of the natural sciences. This, however, presumes that the phenomena in natural sciences and social sciences are sufficiently alike (Babbie & Mouton, 2012:21).

In the positivist paradigm everybody has the same view of the world and research focuses on quantitatively observing and measuring (Wheeldon & Åhlberg, 2012:6). The positivist researcher attempts to collect and analyse data in order to understand the world to such an extent that it can be controlled by being able to predict it (Henning, 2005:17). The strongest

criticism of the positivist paradigm is that it does not take into account how people make meaning of the world or how their background influences this meaning (Henning, 2005:19).

The positivist ontology is that of realism (Scotland, 2012:10). Realism can be defined as the existence of the world independently of the researchers' awareness of it (Burrell & Morgan, 1979:4; Scotland, 2012:10). From a realist perspective it is, therefore, irrelevant whether structures in the social world have been identified or observed, because they exist as empirical entities regardless (Burrell & Morgan, 1979:4).

Objectivism is the epistemological underpinning of positivism (Scotland, 2012:10). Positivist researchers are neutral and view the world as an objective reality (Scotland, 2012:10). In their view the researcher and the phenomenon that is researched are two independent objects (Scotland, 2012:10) and they do not allow the results of the study to be influenced by their own prejudices (Mertens, 2010:15).

Scientists in the positivism paradigm do not attempt to explain phenomena based on underlying causes (Babbie & Mouton, 2012:17) but that the truth about the world can be found only through empirical means based on verified scientific assertions or mathematical proof (Babbie & Mouton, 2012:22; Henning, 2005:17). Because of the search for relationships, the methodology followed by positivist researchers is predominantly quantitative in nature (Henning, 2005:18; Leedy & Ormrod, 2005:95; Mertens, 2010:15). The researcher uses deductive reasoning to propose theories that can either be rejected or confirmed by testing them (Henning, 2005:17).

The scientific method mostly associated with the positivist paradigm is that of the experiment in which natural laws are distinguished through direct observation and manipulation of data. In this type of study the hypothesis is usually tested quantitatively (Henning, 2005:18). The positivist researcher attempts to simplify and control complex phenomena. This is, however, very difficult to do in educational research (Scotland, 2012:11).

By the mid-20th century, there was a move away from positivism in which researchers attempted to understand meaning. These studies, mostly prescriptive, set out to portray researchers' views of the world (Henning, 2005:19). From this original methodology many other methodologies were developed which switched the focus from objective work to subjective work (Henning, 2005:19). The ontological position of **interpretivism** is that of relativism in which people have different views of reality (Scotland, 2012:11). According to the interpretivist paradigm, people hold different views of the world, which are influenced by

their historical, cultural, political and social norms. People construct their own views of the world and of reality (Glesne, 2006:7; Scotland, 2012:11) and, therefore, the interpretivist paradigm is also referred to as the constructivist paradigm (Wheeldon & Åhlberg, 2012:6).

As far as epistemology is concerned, the interpretivist paradigm is extremely sensitive to the role of context. The interpretivist epistemology is that of subjectivism according to which the world does not exist independently of our knowledge of it (Scotland, 2012:11). The interpretivist researcher attempts to search for the frame that shapes meaning (Henning, 2005:20).

In the positivist tradition the researcher concentrates on observable behaviour. In the interpretivist paradigm, however, scientists attempts to understand human behaviour by studying non-observable behaviour such as people's intentions, meanings and reasons (Babbie & Mouton, 2012:33). Interpretivism aims to understand the individual rather than to explain him/her. This tradition assumes that all human beings attempt to rationalise and make sense of their actions (Babbie & Mouton, 2012:28). The aim of the interpretivist paradigm is understanding and interpreting phenomena instead of explaining phenomena based on some natural law. It is for this reason that the methodology mostly associated with this paradigm is qualitative research rather than quantitative research (Babbie & Mouton, 2012:33; Glesne, 2006:7; Henning, 2005:20).

Methods applied in the interpretivist theory are open-ended interviews, focus groups, open-ended questionnaires, open-ended observations, idiographic descriptions, think-aloud protocol and role play (Henning, 2005:20; Scotland, 2012:12). These methods do not attempt to find exact answers, but to gain an understanding of behaviour instead (Scotland, 2012:12). With the introduction of the interpretivist paradigm, the gap between scientific knowledge and reasoning became smaller as researchers began to inquire about how meaning is constructed. The major difference between the positivist researcher and the interpretivist researcher is that the former relies on scientific methods to ensure valid and reliable results, thereby uncovering the truth, while the latter realises that results might not be accurate and that theory is revisable. The interpretivist researcher's main goal is to continue the attempt to uncover reality, even if this can never be achieved (Henning, 2005:20).

Saunders *et al.* (2009:108) point out that one philosophy is not superior to the other, but better at doing different things, depending on the research questions. The following table aims to set out the differences between the positivist and interpretivist paradigms:

Table 2.1: Differences between the positivist and interpretivist paradigms

	Positivism	Interpretivism
Ontology	Realism <i>The researcher and the phenomenon that is researched are two independent entities that do not influence each other</i>	Relativism <i>People hold different views of the world which are influenced by historical, cultural, political and social norms</i>
Epistemology	Objectivism <i>Researchers do not allow personal biases to influence outcomes</i>	Subjectivism <i>The world does not exist independently of our knowledge about it</i>
Methodology	Quantitative studies	Qualitative studies
Methods	Methods by which phenomena can be objectively measured <i>Standardised tests, closed-ended questionnaires, descriptions of phenomena using standardised observation tools</i>	Methods by which phenomena can be understood and interpreted <i>Open-ended interviews, focus groups, open-ended questionnaires, open-ended observations, idiographic descriptions, think-aloud protocol and role play</i>
Nature of data	Representative, often numeric Large sample	Textual or image-based data Focus on informative data Small samples
Analysis of data	Involves descriptive and inferential statistics Stress on objectivity	Search for themes and categories
Communication of results	Numbers, statistics or formal voice (scientific style)	Results are descriptive with little use of numerical information

Source: Glesne (2006:5); Leedy and Ormrod (2005:96); Mertens (2010:15); Scotland (2012:10-12)

Some researchers find it unrealistic to choose between the positivist and interpretivist research philosophy. Saunders *et al.* (2009:109) claim that researchers with this view adopt the philosophy of **pragmatism**. Pragmatism suggests that the research question will determine the epistemology and ontology, because one will be more appropriate than the other to answer specific research questions (Saunders *et al.*, 2009:109). Maree (2012:15)

agrees by stating that the truth is what works best for the specific research question. It is for this reason that pragmatism is considered to be the best research philosophy for a study that combines different research methods.

The philosophy of **realism** assumes that objects exist independently of our knowledge of their existence (Saunders *et al.*, 2009:114). Direct realism states that what we see is what we get, while indirect realism argues that we do not experience objects directly, but that our experiences are mere sensations or the images of the objects in the real world. These sensations are representations of what is real (Saunders *et al.*, 2009:115).

2.2.3 Application to the current study

There seems to be a clash between interpretivism and positivism in that the interpretive worldview emphasises understanding human behaviour and the positivist worldview aims to explain human behaviour (Bryman & Bell, 2011:16). Van der Merwe (2014:46) contends that the human side of accounting is often neglected as a result of the highly technical nature of the field and the fact that the functionalist worldview has been dominating research in this field. Researchers in accountancy also tend to focus on quantitative methods (Van der Merwe, 2014:46). Cohen *et al.* (2011:18) argue that theory should follow research, thereby allowing the theory to include the meanings and purposes of the people who built them. They further state that theories developed in this way would, ultimately, make more sense to the people who apply them.

The current research predominantly adopted the interpretivist philosophical worldview on how knowledge is extracted, as it aimed to gain understanding of the process of aligning learning outcomes and assessments with the requirements of SAQA and SAICA as well as other conceptual frameworks such as Bloom's Taxonomy. Furthermore, personal interviews were conducted in order to gain this understanding. This represents an anti-positivist view to research, because the interviewer was not able to ask the same question to several participants in exactly the same way and interpret the results of their answers with computer-like consistency (Saunders *et al.*, 2009:114). With regard to the investigation of the cognitive levels of learning outcomes and assessments, the study is also regarded as being interpretive, as it relied on interpretation. However, the qualitative data was converted into quantitative data which was analysed statistically. The study therefore combined different research methods and therefore also adopted the philosophy of pragmatism.

2.3 APPROACHES TO RESEARCH

2.3.1 Inductive and deductive reasoning

The approaches to reality as discussed in the previous section also affect researchers' view of the process of reasoning. The two main processes of reasoning are inductive reasoning and deductive reasoning (Smith, 2011:2; Wheeldon & Åhlberg, 2012:7). Inductive reasoning starts with observations of specific cases which are explored in order to generate general conclusions or theories (Babbie, 2010:22; Smith, 2011:2; Wheeldon & Åhlberg, 2012:7). Babbie (2010:22) adds that the discovery does not necessarily explain the reason for the existence of the conclusion or theory, but only the fact that it does exist. Inductive generalisation is concerned with applying the inferences from the observation to a theoretical population (Mouton, 2006:117). Deductive reasoning starts with the theory and then moves on to generate predictions or specific conclusions (Smith, 2011:3). It, therefore, tests whether a pattern that is expected to exist actually does exist (Babbie, 2010:23). These two processes can, however, not always be separated completely, because inductive reasoning will require knowledge of theory in order to select the information to collect (Smith, 2011:3). The two approaches, although different, are both valid approaches to research (Babbie, 2010:23).

2.3.2 Deductive approaches using a theoretical framework

Theory and research are interconnected (Johnston, 2014:207) in that theory informs research, which in turn informs theory (Svensson, 2013). A theoretical framework places the research within the subject or discipline in which the researcher is working (Henning, 2005:25). Furthermore, the theoretical framework provides an orientation to the study, reflecting the researcher's stance and thereby framing the research (Henning, 2005:25). Maree (2012:43) points out that participating in a study with no theoretical framework is like travelling without a map. Similarly, Henning (2005:25) argues that, irrespective of whether an inductive or deductive approach is followed, research is still approached with an implicit theory in mind. A few of the theories used in accounting and/or accounting education research are discussed next.

2.3.2.1 Activity system theory

According to the activity system theory, an activity comprises two sets of three basic elements, namely a given subject, the object of the activity and its mediating artefacts; and the rules that should be followed for the given activity, the community of co-workers involved and the division of labour for the activity (Hart-Landsberg *et al.*, 1992:7; Knight, 2002b:111).

In the field of accounting education, Knight (2002b:111) drew on the activity system theory in a study of assessment in higher education. The activity of assessment, therefore, contain six elements as illustrated in Figure 2.4:

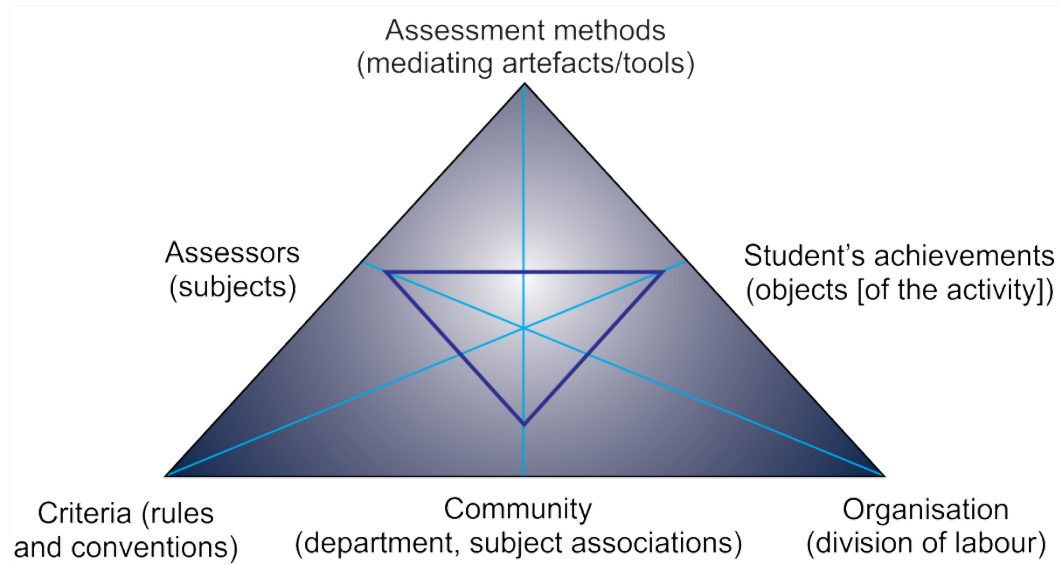


Figure 2.4: The assessment of achievement as an activity system

Source: Knight (2002b:111)

In some cases the activity system can be applied unproblematically, but in other instances the elements of the activity system are “loosely coupled” because of the inability to clearly configure each of the separate elements. For instance, in the case of assessment of problem-working, there are differences in opinion regarding the configuration of the elements (what criteria should be used; who should assess?) (Knight, 2002b:112). This study is, however, not concerned with assessment only and therefore the theory was not adopted as the underlying theory for the study.

2.3.2.2 *Institutional theory*

Institutional theory considers “the processes by which structures, including schemas, rules, norms and routines, become established as authoritative guidelines for social behaviour” (Scott, 2005:2). It focuses on how all of these elements are created, adopted and then abandoned in the end.

According to DiMaggio and Powell (1983), coercive, mimetic and normative forces produce similarities within a certain organisational field. The organisational field is defined as a set of organisations that comprise a recognised area of institutional life, including key suppliers, resources, product consumers and regulatory agencies. Universities share similar resources, suppliers, product consumers and regulatory agencies and can, therefore, be regarded as an organisational field (Morphew & Huisman, 2002:496). Coercive isomorphism results from the

organisation's being pressured by other organisations on which it is dependent and by cultural explanations such as government control, laws and technical requirements (Morphew & Huisman, 2002:496). For example, coercive isomorphism might explain the fact that higher education institutions which receive government grants display many of the same organisational practices and structures. Mimetic isomorphism is when organisations copy other organisations that they view as more prestigious. Normative isomorphism results from the standardising effect of professional bodies that adopt similar practices and procedures (Morphew & Huisman, 2002:496).

In the literature on institutional theory a distinction is drawn between technical and institutional organisations. Technical organisations use routine, well-defined technologies to produce outputs which can be measured clearly, while institutional organisations use technologies which are not so clear (such as teaching) to produce outputs (knowledge or students) which cannot be measured easily or clearly (Morphew & Huisman, 2002:495). It is not sufficient for institutional organisations to operate efficiently; they have to be viewed as legitimate both internally and externally. Therefore, normative practices are adopted by these organisations, resulting in the increase of homogeneity within the organisational field.

2.3.2.3 *Theory of constructive alignment*

According to the theory of constructive alignment, the learning outcomes, teaching/learning activities and assessments have to be intrinsically aligned (Biggs & Tang, 2009). Biggs (1999:31) stresses that the learning outcomes have to be formulated before the learning activities or assessments are developed to enable students to understand what is expected of them. Constructive alignment is discussed in detail in chapter 6 (page 124) of this thesis.

The theory of constructive alignment has been used as theoretical framework in previous studies in education. For example, Nasrallah (2014) examined the ambiguities regarding learning outcomes in higher education, as well as how they are perceived by faculty members. In studying the market relevance of university accounting programmes, Pan and Perera (2012) chose the constructive alignment theory as one of the theoretical frameworks for their study. Numerous other studies in accounting education implicitly drew on the theory of constructive alignment (Byrne *et al.*, 2009; Herbert *et al.*, 2009; Mladenovic, 2000; Palm & Bisman, 2010; Wessels & Roos, 2009).

2.3.3 *Application to the current study*

The current research adopted the deductive approach, starting with a theory and then moving on to draw conclusions based on the theory. This approach, therefore, tests whether

a pattern that is expected to exist actually does exist. The theoretical framework in this study drew from both the theory of constructive alignment and institutional theory. The theory of constructive alignment is concerned with the alignment of learning outcomes, teaching/learning activities, and assessment. This study only focused on the alignment between learning outcomes and assessment, which forms one of the pillars of constructive alignment. Thus, the theory of constructive alignment can be used as framework to analyse the alignment between learning outcomes and assessment.

Morphew and Huisman (2002) argue that universities can be seen as institutional organisations based on the organisational theory. As mentioned above, normative isomorphism suggests that universities adopt similar practices and procedures based on the standards that are imposed by the governing professional bodies such as in accounting education where the professional accounting bodies, such as SAICA, set the standards for the training of accountants (paragraph 3.7, page 58). In order to retain accreditation with these bodies universities have to conform to these set standards. The theoretical framework provided by institutional theory provides a useful approach to examining and explaining the alignment between the prescriptions of SAICA, SAQA and the universities that provide chartered accountancy training.

2.4 RESEARCH STRATEGIES

This section explores the strategies that can be employed in research studies. Saunders *et al.* (2009:141) explain that these strategies clearly belong to the deductive approach while others are more suitable for the inductive approach. They do, however, warn that it is often not as simple as merely allocating a strategy to one approach or the other and that no strategy should be seen as superior to another. These strategies should also not be seen as mutually exclusive, as one strategy could form part of another (Saunders *et al.*, 2009:141). Henning (2005:70) agrees that research strategies should not be seen in compartments, but that they overlap and represent broad categories of research designs. Research strategies are guided by research questions and objectives, the level of knowledge already obtained, available resources and the underlying research philosophy (Saunders *et al.*, 2009:141).

Saunders *et al.* (2009:107) address experiment, survey, case study, action research, grounded theory, ethnography and archival research in the research onion (refer to Figure 2.1, page 18). In the subsequent discussion of the research strategies, content analysis is added to this list of strategies.

2.4.1 Experiment

This form of research is often associated with natural sciences, although it is used extensively in social science research (Saunders *et al.*, 2009:142). The experiment examines whether there is a link between variables by manipulating the independent variable (Maree, 2012:84; Saunders *et al.*, 2009:142). In an experiment two groups are formed and members are assigned to the two groups. One group, referred to as the experimental group, will be exposed to the intervention. The other group, the control group, will not be exposed to the intervention. The independent variable is measured before and after the intervention for both groups to allow comparison. The difference between the control group and the experimental group can then be ascribed to the particular intervention (Saunders *et al.*, 2009:142).

2.4.2 Survey

The survey strategy is widely used in social science research (Babbie, 2010:254) and is mostly associated with the deductive approach of reasoning (Saunders *et al.*, 2009:144). This approach is often favoured, as it allows the collection of data from a sizeable population. Data are usually obtained by means of administering a standardised questionnaire to a sample of respondents, after which the data are standardised in order to enable comparison (Babbie, 2010:254; Saunders *et al.*, 2009:144). Survey research is usually used where individual people form the unit of analysis (Babbie, 2010:254). This approach is seen as trustworthy by researchers and is easily understood (Saunders *et al.*, 2009:142). The survey approach allows the researcher to gather qualitative data and analyse the data quantitatively. Saunders *et al.* (2009:144) confirm that this approach to research could be used to generate findings that can be generalised to the whole population at a lower cost than gathering data for the entire population. Structured interviews and structured observation are other techniques that can be used in this approach (Saunders *et al.*, 2009:142).

2.4.3 Case study

Although the defining characteristic of a case study is the emphasis on an individual unit (Babbie & Mouton, 2012:281), case study research does not necessarily focus on an individual or group of individuals, but can also focus on a “system of action” (Henning, 2005:75). Babbie and Mouton (2012:281) agree that most qualitative studies encompass the analysis of more than one variable. According to Glesne (2006:13), the fact that a case study does not necessarily focus on an individual could be confusing and it should, therefore, be borne in mind that each unit of the study has to be a “bounded integrated system with working parts”.

In case study research the researcher does not only take into account the input from one or two participants, but considers the views of other relevant participants as well (Henning, 2005:75). Multiple sources and techniques are applied to gather data for case study research (Babbie & Mouton, 2012:283; Henning, 2005:76). This is one of the strengths of case study research. The data used are often quantitative data and are usually collected by means of surveys, interviews, reviewing documents and observation (Henning, 2005:76).

The main criticism against case study research is that the findings are based on a single case and cannot be extrapolated to a greater population (Henning, 2005:76; Leedy & Ormrod, 2005:135). The goal of this kind of research is rather to gain a better understanding of the dynamics of a particular situation (Henning, 2005:76).

Case study research is common in education. An example of case study research in education is where a researcher studies the educational strategies of an exceptional teacher (Leedy & Ormrod, 2005:135).

2.4.4 Action research

The idea of action research was developed by Kurt Lewin in the mid-1900s with the purpose of solving societal problems (Sesay, 2011:51), in particular industry problems with the focus on increasing the efficiency of businesses (Glesne, 2006:7). Action research attempts to address these problems by developing solutions (Maree, 2012:84). The action researcher seeks to gain an understanding about a system while simultaneously attempting to change it (Babbie & Mouton, 2012:63).

Action research has once again become popular, especially in educational research as a way to improve educational practices (Glesne, 2006:17). Action research requires that the researcher understand the problem and possible solutions to the problem. It deals with the “why” and “how” questions and, therefore, qualifies as qualitative research (Henning, 2005:74). In action research the researcher attempts to find a solution to a problem by implementing an intervention and assessing the success of the intervention (Henning, 2005:74). Action research involves identifying a problem, collecting and analysing data, implementing an intervention to solve the problem and, finally, evaluating the success of the intervention (Glesne, 2006:7; Henning, 2005:74).

The primary goal of action research is to improve one’s practice and not necessarily to extrapolate one’s findings to a larger population (Sesay, 2011:51). In the current study the

purpose was not to generalise the findings to all programmes in higher education, but to improve the assessment practices of CA programmes in South Africa.

According to Sesay (2011:51), it is imperative that educators perform studies in order to find solutions to the problems they experience, as they are closely acquainted with these problems. Educators are in a better position to provide answers to educational problems than expert researchers, and their research is more likely to lead to changes in the classroom. The purpose of the current study was, however, not to implement an intervention and to assess the success thereof and, therefore, the strategy followed in this study is not action research.

2.4.5 Grounded theory

Contrary to other research methods that develop a theory and then test it, grounded theory research attempts to develop a theory that is grounded in the data that were collected and analysed (Babbie & Mouton, 2012:498; Henning, 2005:77; Morgan & Sklar, 2012:75). Grounded theory is, thus, an inductive approach rather than a deductive approach (Babbie & Mouton, 2012:498; Henning, 2005:78). In grounded theory data are collected by means of, inter alia, interviews, observation, written reports, statistics and field notes (Morgan & Sklar, 2012:75).

2.4.6 Ethnography

The word “ethnography” is derived from the Greek words *ethnos* (people) and *graphein* (to write) and, therefore, translates to “writing about people” (Henning, 2005:76). The goal of ethnographic studies is to gain an understanding of people by observing their behaviour (Babbie & Mouton, 2012:279) and studying the gestures, displays, symbols, songs, etc., from their cultures (Henning, 2005:76). The researcher achieves this observation of behaviour through fieldwork which involves the researcher’s living among those who are studied (Sesay, 2011:45). The main methods of collecting data are interviewing and observing the participants (Babbie & Mouton, 2012:280). The ethnographic study is a form of case study.

2.4.7 Archival research

In archival research the researcher attempts to find out how historical events have influenced the present by studying, analysing and interpreting these events in an attempt to understand them (Henning, 2005:72; Sesay, 2011:47). The focus is on the questions “What happened?” and “Why did it happen?” (Henning, 2005:73). The researcher could also make inferences of how past events might impact future events based on his/her findings (Sesay, 2011:47).

Sesay (2011:47) proposes that data be gathered by critically analysing documentary evidence and interviewing individuals and groups. Henning (2005:73) concurs that historical research requires a critical analysis of documents, as this will ensure validity and reliability of the results. According to Saunders *et al.* (2009:150), archival data can refer to both historical and recent documents.

In educational research, historical research could help to determine why certain practices in the past were successful or not (Sesay, 2011:47). A wide range of educational questions can best be studied through historical research (Henning, 2005:72; Nieuwenhuis, 2010:5). Swart (2010) used an archival research strategy to examine past examination papers in order to determine the level of assessment in engineering modules.

2.4.8 Content analysis

Bryman and Bell (2011:289) define “content analysis” as “an approach to the analysis of documents and texts that seeks to quantify content in terms of predetermined categories and in a systematic and replicable manner”. It, therefore, involves a set of procedures to make valid inferences from texts (Smith, 2011:147). “Text” refers to books, brochures, written documents, transcripts, news reports and visual media (Maree, 2012:6).

Content analysis is usually applied to archival data using quantitative methods to observe features in the text, such as the number of occurrences of a word in the text. These quantitative results could then be statistically analysed (Smith, 2011:148). It can, however, also be applied in the qualitative analysis of open-ended survey responses. In this sense the purpose of content analysis is to reveal underlying themes in the data (Smith, 2011:148). An important characteristic of content analysis is that it enables the researcher to go behind the text being investigated to find hidden or underlying meanings that are of interest to the researcher. It is, thus, not limited to revealing content (Smith, 2011:148). To this end, there are two alternative approaches to content analysis, namely objective analysis and subjective analysis. The objective analysis approach involves quantitative analysis where words or concrete references are counted. The subjective analysis, on the other hand, is where the underlying themes in the text are examined.

Bryman and Bell (2011:291) indicate that content analysis is not a popular research method for researchers in the field of business and management because they are not sure how it should be used. Content analysis has been used in educational research to evaluate learning outcomes and assessment papers (Crowe *et al.*, 2008; Johnson & Fuller, 2006; Lucas *et al.*, 2014; Swart, 2010; Thompson *et al.*, 2008; Williams, 2013; Yap *et al.*, 2014) and to analyse

the taught topic areas and the cognitive skills that are developed and taught in accounting (Lakshmi, 2013).

2.4.9 Application to the current study

The research strategy adopted in this study is a **combination of case study, content analysis and archival research**. The goal of case study research is to gain a better understanding of a particular situation, in this case the development of modules within CA programmes at South African universities. Data were gathered by means of interviews and document reviews to gain an understanding of the process followed by a university in deriving a framework of module development and alignment while taking into account the requirements of SAQA and SAICA and other educational frameworks.

A detailed analysis of course documentation and assessments is required for an analysis of the cognitive level of competencies (Frecka & Nichols, 2004; Yap *et al.*, 2014). Yap *et al.* (2014:569) argue that content analysis is an appropriate research method for investigating competencies and is used in most studies that attempt such investigations. Therefore, content analysis was used to analyse the cognitive levels of the learning outcomes and assessment items. Archival data (learning outcomes and assessment papers) were analysed by means of content analysis in an attempt to make inferences about the level of learning outcomes and assessment in CA programmes at South African universities. The data were analysed to determine the number of occurrences of certain words (such as action verbs) or themes (such as cognitive levels) in the text. This channelled the research to follow a mixed-method approach, with qualitative research being more dominant.

2.5 CHOICES OF METHOD

Methods in social research include methods of sampling, methods to collect the data required and methods to analyse the data. The researcher's choice of methods will depend on the objective of the study, the object of the study, the type of data and the underlying assumptions of the researcher (Babbie & Mouton, 2012:49). Babbie and Mouton (2012:49) refer to the methods applied by the researcher combined with their underlying assumptions as the methodological paradigm.

2.5.1 Methodological paradigms

The two main methodological paradigms in social research are quantitative and qualitative research. Each of these paradigms has been associated with one of the metatheories: the

quantitative paradigm has been associated with positivism and the qualitative paradigm with interpretivism (Babbie & Mouton, 2012:49).

In essence the difference between quantitative and qualitative research is the difference between numerical data and non-numerical data (Babbie, 2010:23). **Quantitative research** involves reducing systematic observations and measurements to numerical data (Wheeldon & Åhlberg, 2012:43). Quantitative researchers believe that probabilities can be estimated for actions or interactions (Wheeldon & Åhlberg, 2012:43). Following on this the goal of quantitative research is to make generalisations about phenomena, to make predictions regarding these phenomena and to provide a measurement of relationships among phenomena (Glesne, 2006:4). Quantitative research usually starts with a theory. A hypothesis is developed based on this theory after which categories of data are selected and objectively tested based on existing assumptions. By doing this the hypothesis is tested. Analysing the data involves objective methods that remove the researcher from the data, thereby avoiding influence. All the data analysed are reduced to numerical data which, in turn, are used to make generalisations regarding the phenomena (Glesne, 2006:4; Wheeldon & Åhlberg, 2012:9).

Quantitative research refers to “counts and measures of things”, whereas qualitative research refers to the “meanings, concepts, definitions, characteristics, metaphors, symbols, and descriptions of things” (Berg, 2007:3). In **qualitative research** information is obtained from selected individuals or groups and about events, incidences or occurrences in real-life situations (Wheeldon & Åhlberg, 2012:83) in an attempt to understand how these individuals or groups construct the world around them (Glesne, 2006:4). Also, the focus is often on narrative information with the purpose of describing real life as reliably as possible (Wheeldon & Åhlberg, 2012:82). Qualitative research, through inductive reasoning, focuses on specific cases and content-specific realities in order to build theory. The assumption is made that all data are contextualised and that the researcher will, through subjective investigation, identify relationships (Wheeldon & Åhlberg, 2012:9) but not attempt to condense the interpretations into a single norm (Glesne, 2006:5). Where quantitative researchers are removed from the subjects of their study, qualitative researchers are the main research instrument and conduct interviews and observe and interact with the subjects of their study (Glesne, 2006:5). The final results of the qualitative study are descriptive and usually contain little numerical information (Glesne, 2006:5).

Although quantitative data have advantages over words such as the precision of numbers (Berg, 2007:2), qualitative data have more richness of meaning (Babbie, 2010:24; Maree,

2012:128). According to Babbie (2010:23), qualitative and quantitative research are both suitable and valid approaches to research in social sciences and the choice will depend on the topic of research.

In the research onion Saunders *et al.* (2009:107) refer to the way in which the researcher chooses to combine qualitative and quantitative techniques. When the researcher chooses to use a single method of data collection and a single method of analysing the data, it is referred to as **mono-method**. However, when more than one method of data collection and analysis are adopted the research method is referred to as **multi-method** (Saunders *et al.*, 2009:151). It is important to note that quantitative and qualitative methods are not mixed within the multi-method approach. Multi-method implies that the researcher uses more than one data collection technique to collect quantitative data, which are then analysed quantitatively. Where both qualitative and quantitative techniques are combined within the same study it is referred to as **mixed method** (Saunders *et al.*, 2009:151).

2.5.2 Mixed-method research

In the mixed-method approach quantitative and qualitative techniques are not combined, but either used at the same time or one after the other (Saunders *et al.*, 2009:151). There is often a need to combine qualitative and quantitative methods in a study. Maree (2012:265) puts forward four basic mixed-method design types. The first of these designs is the **explanatory mixed-method design**. The reason for using this type of method is to explain quantitative findings by means of qualitative findings (Maree, 2012:266). The reasoning behind this is that qualitative findings provide a richer, extended explanation of quantitative results (Maree, 2012:266). This type of research is conducted in two phases: in the first stage the researcher collects and analyses the quantitative data, and in the second stage he/she collects and analyses the qualitative data. The next design type is the **exploratory mixed-method design**. This method is used by researchers to explore a topic before testing it with quantitative measures (Maree, 2012:267). In contrast to the explanatory design, the researcher will collect and analyse the qualitative data first and then move on to the collection and analysis of the quantitative data. This allows the researcher to explore a certain field in order to gain a better understanding of it, or to identify themes, or to develop a theory to guide the quantitative analysis (Maree, 2012:266). In a study by Crowe *et al.* (2008) an assessment tool was developed by means of qualitative data analysis and subsequently used to test the level of questions in biology.

The **triangulation mixed-method design** involves the collection of both qualitative and quantitative data at the same time. The researcher uses the quantitative and qualitative data

to gain the best possible understanding of the topic of interest. In this type of research the researcher compares and contrasts the findings to validate the conclusions (Maree, 2012:268). The fourth mixed-method design, **embedded mixed-method design**, is used to answer a second research question that is related to the first research question.

2.5.3 Application to the current study

Mixed-method research has become increasingly accepted and used in research in social sciences (Bryman & Bell, 2011:630) and education (Lichtman, 2010:84). The intended research strategies for this study included archival research, case study and content analysis and included qualitative and quantitative data collection and analysis techniques. The study can, therefore, be seen as having taken a mixed-method approach.

The **exploratory mixed-method approach** was adopted in this study, because qualitative analysis (document analysis and interviews with individuals representing the universities) supported and enabled the development of a framework against which the quantitative results of the analysis of examination papers and learning outcomes could be compared (Maree, 2012:267). The advantage of the mixed-method approach for this study was that it took the best of both methods (Lichtman, 2010:85), providing more evidence than either quantitative or qualitative research alone could have, and allowed the researcher to answer questions that could not have been answered by either of the approaches alone.

2.6 TIME HORIZONS

The time horizon of the study pertains to the question of whether the study intended to take a “snapshot” at a particular point in time or be conducted over a period of time (Saunders *et al.*, 2009:155). These two alternatives are referred to as cross-sectional and longitudinal studies.

2.6.1 Cross-sectional

When a study is based on a snapshot at a particular point in time it is referred to as cross-sectional (Saunders *et al.*, 2009:155). Bryman and Bell (2011:53) provide the following definition of cross-sectional research:

A cross-sectional design entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association.

Bryman and Bell (2011:53) also state that cross-sectional research is often associated with content analysis.

2.6.2 Longitudinal

Longitudinal studies aim to investigate or observe phenomena over an extended period of time (Babbie & Mouton, 2012:93; Saunders *et al.*, 2009:155). It usually involves the researcher being a participant in a certain situation for a period of time or conducting interviews over a period of time (Bryman & Bell, 2011:63). Another form of longitudinal research is where the researcher performs content analysis on archival data (Bryman & Bell, 2011:63).

2.6.3 Application to this study

As this study involved collecting data of more than one university at a certain point in time (single academic year) the research can be classified as cross-sectional. Module outcomes, learning outcomes and final summative examinations were collected for more than one university for a certain academic year, i.e. a snapshot at a certain point in time.

2.7 TECHNIQUES AND PROCEDURES

In qualitative and quantitative research it is important to provide justification for the methods used to collect data. In both these types of research the purpose of the study and the research question should serve as a guideline for the choice of methods (Henning, 2005:6; Maree, 2012:88). Maree (2012:89) presents the methods for collecting data as follows:

Table 2.2: Techniques for collecting data

	Qualitative	Quantitative
Interviews:	Focus group interviews	Survey
	Telephone interviews	Questionnaires
Observation:	Participant observation	Standardised tests
	Non-participant observation	Structured observation
Documents:	Personal documents	
	Public documents	
	Archival documents	

Source: Maree (2012:89)

Henning (2005:6) suggests that at least two methods of collecting data should be used in order to ensure that the data are varied. The techniques for data collection applied in this

study included interviews and analysis of documents. These techniques will be explained in detail in chapter 7.

2.8 ETHICAL CONSIDERATIONS

Ethics in research is concerned with the role that values play in research (Bryman & Bell, 2011:122). Most universities have their own guidelines pertaining to the ethical issues in research related to the protection of the human participants. Some of these guidelines might be based on standards provided by the government to regulate research (Maree, 2012:149). Most researchers in social sciences agree on the main areas of concern relating to ethical conduct (Babbie, 2010:65). These areas are addressed below.

2.8.1 Harm to participants

The first and foremost principle of ethical research is to do no physical or psychological harm to the participants (Salkind, 2014:149). Researchers should at all times protect the welfare and rights of the people with whom they work professionally, as well as those of the participants of research studies. Because researchers' actions and professional judgements could have an influence on the lives of others, they should be particularly careful not to misuse that influence or put pressure on participants (Maree, 2012:150). Harm can be in several forms, such as physical harm, harm to development or self-esteem or embarrassment, stress, harm to career prospects or future employment or danger to their home lives (Babbie, 2010:65; Bryman & Bell, 2011:128). Harm to non-participants should also be avoided (Bryman & Bell, 2011:128). The researcher must be sensitive to even the subtlest form of danger to the participant and guard against it (Babbie, 2010:65).

2.8.2 Informed consent

Research participants should be informed of the study in a way that enables them to make an informed decision as to whether they wish to participate (Bryman & Bell, 2011:133). Informed consent does not only mean that the participants be asked whether they wish to participate in the study, but also that they be informed of the full research process (Bryman & Bell, 2011:133) so that they have a clear understanding of all the possible risks before making their decision (Babbie, 2010:66). For example, a participant should be informed that an interview will be recorded at the beginning of the interview (Bryman & Bell, 2011:133). Every participant should read and sign an informed consent letter (Salkind, 2014:150). Babbie (2010:66) does, however, note that there are circumstances in which this will not be possible, such as a research project that involves observing a riot.

2.8.3 Maintenance of privacy

Researchers should, at all times, respect participants' dignity and their right to privacy and confidentiality (Maree, 2012:152). It is important to note that providing informed consent does not mean that participants give up their right to privacy completely. Anonymity and confidentiality ensure participants' privacy (Babbie, 2010:67). Anonymity implies that nobody, not even the researcher, can identify a certain response with a certain respondent. This proves challenging in an interview situation where the researcher has to gather the information from the respondent (Babbie, 2010:67). However, when a researcher is aware of the participant's identity, confidentiality can be ensured by promising not to reveal the identity (Babbie, 2010:67). According to Salkind (2014:152), all information should be held completely confidential, disguised where necessary and kept in a controlled situation. In the case of confidential research, as opposed to anonymous research, the researcher has to clearly inform the participant of the confidentiality (Babbie, 2010:67).

Bryman and Bell (2011:129) claim that it is often easier in quantitative research to achieve anonymity and report findings without revealing the individual than it is in qualitative research. They suggest that the use of pseudonyms is one method of achieving anonymity, but it does not rule out the possibility of identification completely (Bryman & Bell, 2011:129). Salkind (2014:150) agrees by mentioning that a single master document containing the names of the participants, as well as their identification numbers or pseudonyms, should be used. This list should be kept in a safe place and only the principle researcher should have access to it.

2.8.4 Deception

Deception occurs when researchers conceal their research (Babbie, 2010:70) or represent their research as something other than what it actually is (Bryman & Bell, 2011:137). Where deception is essential, it has to be justified by compelling scientific or administrative concerns (Babbie, 2010:70). Debriefing is suggested as an appropriate solution when a certain degree of deception was used in a research study. Debriefing entails that the participants be informed of the intent and result of the study immediately after the study (Babbie, 2010:70; Salkind, 2014:153).

Researchers should maintain a professional relationship with their collaborators, research assistants and participants. This means that they should adhere to professional conduct standards, remain objective, take responsibility for their actions and clearly state their roles and expectations. In doing so they should also ensure ethical compliance of their

collaborators' conduct. They have to be well prepared, informed and supervised regarding performing the research task (Maree, 2012:151).

2.9 CONCLUSION

This chapter introduced some of the philosophical and theoretical contexts of research. It was explained that research is the search for answers to life's problems. The purpose of research is to enhance the pool of knowledge within a subject area. Researchers hold different views of the world, or paradigms, which influence the way in which they conduct research. These paradigms frame their research. The ontology, epistemology and methodology associated with the different paradigms were addressed in this chapter.

Based on the research onion framework, the philosophical stance, theoretical framework, research method and research strategy for this study were defined and motivated. The application thereof in the current study is summarised in Table 2.3.

Table 2.3: The research onion applied to the current study

Layer of the onion	Application to current study	Explanation
Philosophy of research (paragraph 2.2.3)	Interpretivism Pragmatism	Although the predominant philosophy is that of interpretivism, this study combines qualitative and quantitative methods. The underlying philosophy of this study is therefore that of pragmatism.
Approach to research (paragraph 2.3.3)	Deductive	The study followed the deductive approach drawing on the theories of constructive alignment and institutional theory.
Research strategy (paragraph 2.4.9)	Case study Content analysis Archival research	The case study approach was used to gain an understanding of the process of module development in CA programmes. Content analysis of archival data (learning outcomes and assessment questions) was performed to assess the level of learning outcomes and assessments and to determine the degree of alignment between learning outcomes and assessment.
Choice of method (paragraph 2.5.3)	Exploratory mixed-method	Qualitative analysis was followed by quantitative analysis of the results.
Time horizon (paragraph 2.6.3)	Cross-sectional	Data were collected at a certain point in time (a single academic year)

Source: Researcher

The techniques and procedures for data collection applied in this study are explained in chapter 7. Researchers have certain ethical obligations to the participants in their studies. These considerations were addressed and an awareness was raised as to certain concerns that might arise in collecting and analysing data for a social research study.

CHAPTER 3:

CONTEXTUAL BACKGROUND

3.1 INTRODUCTION: HIGHER EDUCATION

The main research objective of this study is to evaluate the pertinence and alignment of educational level requirements to learning outcomes and summative assessments in CA programmes at SAICA-accredited South African universities. In order to reach this objective chapter 3 aims to contextualise the training of CAs within the South African higher educational system (objective 1.5.2.1, page 11).

Education can be defined as “any planned series of incidents, having a humanistic basis, directed towards the participant(s)’ learning and understanding” (Jarvis, 1983). Botha (2001:34) elaborated on this definition and concluded that education is directed towards the development of an individual (the learner) and composed of a series of activities which are planned and take place over a period of time. The concept of “education”, however, is very broad and could include training, supervision of the development of skills, facilitation of thinking and even teaching of manners (Von Glasersfeld, 2001:161). It is for this reason that learning and teaching cannot be expected to always take place in the same manner. The components of teaching and learning are curriculum and teaching and assessment, and when these components are integrated, high-level learning is supported (Biggs, 2002).

According to the Oxford Dictionary (2015), “higher education” can be defined as “education at universities or similar educational establishments, especially to degree level”. According to Knight (2001:369), higher education is about “complex learning”. Nygaard and Belluigi (2011:657) explain that the role of higher education within the educational system is to lead students in the process of acquiring knowledge, skills and competencies in order to equip them for their role in society. Siemens and Matheos (2010:4) also emphasise the important role of higher education in society by stating that higher education transforms and improves society through research, teaching and service. Booth *et al.* (1999) refer specifically to accounting education when he adds that the role of the educational process is to achieve high-quality learning outcomes.

Higher education faces several challenges. Globalisation, rapid technological advances and increased competition in markets have called for changes in the higher education landscape (Fouché, 2013:137). Accounting education has been facing similar challenges and there

have been calls for change with regard to standards and quality (Watty *et al.*, 2014:286). The nature of the work required by accounting practitioners is changing (Thomson, 2009:13), yet accounting education remains content driven instead of innovative (Fouché, 2013:147). In South Africa there are three main role players in providing professional chartered accountancy training: SAQA, SAICA and the universities themselves (Ballim *et al.*, 2014:1150). The responsibility for quality in CA programmes at South African universities is delegated to SAICA (Van der Merwe *et al.*, 2014:279) who accredit universities for the training of CAs (SAICA, 2015).

Competency-based education (CBE) has become popular in recent years with its aim to measure outcomes (Negash, 2012:176). This chapter introduces CBE. “Competency-based education” refers to learning environments where competencies are used as a basis for determining the goal and content of education (Kamphorst *et al.*, 2012:2). CBE is also used interchangeably with the term “outcomes-based education” (OBE). Soon after the first democratic election in South Africa in 1994 the educational system was changed from norm based to outcomes based with the aim to redress general educational inequities (Collins, 2015:495). This was not unique to South Africa. Internationally, education moved from comparing performance to norms to comparing it with outcomes (Collins, 2015:495). In OBE predetermined learning outcomes should guide the educational process (Morcke *et al.*, 2013:851) and students have to be able to apply knowledge in the workplace instead of merely accumulating knowledge during their years of study (Koenen *et al.*, 2015:1). OBE has the advantage of enabling the lecturer to determine whether the intended learning outcomes have been reached (Voorhees, 2001:5). From this, the importance of learning outcomes in the educational process can be seen clearly.

Chapter 3 will set the context of education, and more specifically accounting education, within higher education. The role of SAQA and SAICA in this process will be explored. Furthermore, learning and the different theories of learning will be explored.

3.2 THE CHANGING SCENE IN HIGHER EDUCATION

Higher education has seen a global, economic and political transition in recent years (Maassen & Cloete, 2006:7). Many authors refer to this transitional process as globalisation (Altbach & Knight, 2007; Castells, 2001; Held *et al.*, 1999; Maassen & Cloete, 2006:7). Most countries are feeling the effect of global trends and pressures (Maassen & Cloete, 2006:7). Educational institutions are being forced to deal with the implications of globalisation. Educational institutions can no longer operate in isolation, but have to compete internationally. The effects of globalisation include rapidly changing information technology,

new ways of financing, commercialisation, unparalleled freedom of movement for both learners and teachers, global distribution of scholarly ideas, etc. (Altbach, 2013:70). English has become the global educational language, and local journals have to compete with international journals in their subject area, while academics are pressured to publish internationally (Altbach, 2013:7). Altbach (2013:7) reports that many countries have seen unparalleled expansion in higher education in the recent past and that there are approximately 134 million students in higher education worldwide.

Education has become a commodity that is sold and paid for and, consequently, universities have almost become like organisations selling a product (Biggs & Tang, 2009:1; Hussey & Smith, 2002:221). This commodification of education has had an effect on research and teaching: higher education has become a business, and students, who have become clients, will demand quality assurance for the product they are buying (Biggs & Tang, 2009:1; Light *et al.*, 2009:4). According to Biggs and Tang (2009:1), funding plays a major part in the changes in higher education. Student fees now make up the highest proportion of funding, unlike in the past when universities were almost entirely funded by government. Today, government funding could be as little as 30% of total funding, with the balance being made up of student fees (Biggs & Tang, 2009:1). At the same time, it has become more challenging to attain research funds (Light *et al.*, 2009:2). This has placed an enormous emphasis on resources and thereby on the quality of teaching and maintenance of standards at higher education institutions (Biggs & Tang, 2009:1), which has led to an increase in criticism by the public and concerns regarding accountability and increased calls for excellence in higher education (Light *et al.*, 2009:2; O'Donovan *et al.*, 2004:326).

Light *et al.* (2009:3) add the shift to a knowledge-based economy and lifelong learning to the list of issues facing higher education. They further argue that society is of the opinion that higher education as we know it is no longer suitable to deliver these requirements. According to Light *et al.* (2009:11), the following aspects add to the challenges facing teaching and learning in higher education:

- An increasing number of students in classrooms;
- The increasing diversity of the students with regard to background, experience, needs and expectations;
- The curriculum of transferability, which includes acquiring global competencies;
- Advancements in technology and its use in higher education, including opportunities such as online learning; and
- The shift from teaching to learning and developing students' ability to construct their own knowledge.

3.3 EDUCATION IN SOUTH AFRICA

Since 1994 there has been a significant reform in the South African educational landscape (Mouton *et al.*, 2012:1211). Most nations are going through a transformation process that is strongly influenced by the global forces and trends as described above. The reform in the South African educational system after the first democratic election in 1994 was, therefore, not an isolated event, but formed part of the global transition process in higher education (Maassen & Cloete, 2006:7).

There was a definite search for change in South African education in the early 1990s (Botha, 2002:361). South African education was characterised by problems such as inefficient curriculums, challenges regarding resources, student enrolment numbers, inequality, inadequate financing and a lack of trained teaching staff. Botha (2002:361) adds to this that teaching methods were unimaginative and that learners studied material by heart.

In 1997 the Ministry of Education addressed the issue of quality in South African education by introducing OBE. The introduction of OBE came in response to international trends, but also as an attempt to set learners free from the then current system of content-based learning (Botha, 2002:362). Thus, in March 1997, Curriculum 2005 was introduced. Curriculum 2005 was an outcomes-based curriculum that focused on what the learner should be able to do at the end of the learning process. This end goal dictated the process, namely defining the goal and organising the curriculum, providing instruction and then conducting assessment to ensure that the goal has actually been achieved (Botha, 2002:363; Spady, 1994:6).

However, OBE seemed to be confusing and controversial for the policy makers, as well as the educators in South Africa (Mouton *et al.*, 2012:1212). In 2011 OBE in South Africa was phased out when Angelina Motshekga, the Minister of Basic Education, announced the new National Curriculum Statements for Grades R to 12 as national education policy (South Africa, 2011:3). Changes included a reduction in the number of subjects for Grades 4 to 6, including a compulsory additional language in Grade 1, more time spent on languages, fewer projects and the removal of common task assessments (Malaleka, 2011; Mouton *et al.*, 2012:1215).

3.3.1 Higher education in South Africa

After 1994 one of the priorities of the new government was to restructure the higher education system in South Africa. This was done by introducing new policies and legislation (Makhanya & Botha, 2015). To this end, the Higher Education Act (Act No. 101 of 1997) was promulgated and brought about a single higher education system.

As far as higher education is concerned, the South African government encourages accountability: Institutions of higher education need to be accountable to their clients (students) as to the quality of learning that they offer. This issue of accountability was addressed by introducing the Council on Higher Education (CHE) in 2007 which assigned the responsibility of quality assurance to the HEQC (Selesho, 2012:345).

South Africa currently has three kinds of universities: 11 traditional universities that offer bachelor degrees, postgraduate study and have a strong research focus; six comprehensive universities that offer both bachelor degrees and technology qualifications, as well as postgraduate study, and also have a research focus; and six universities of technology that offer higher certificates, diplomas and degrees in technology with some focus on research and postgraduate study. Almost half of the students in higher education are enrolled with the six comprehensive universities (HESA, 2012; IEASA, 2012). Table 3.1 shows the universities in South Africa.

Table 3.1: Higher education landscape in South Africa

	Type	Name
1	Universities	University of Cape Town
2		Rhodes University
3		University of Pretoria
4		University of the Free state
5		University of Fort Hare
6		North-West University
7		University of Kwazulu-Natal
8		University of Limpopo
9		University of the Western Cape
10		University of Stellenbosch
11		University of the Witwatersrand

12	Comprehensive university	Nelson Mandela Metropolitan University
13		UNISA
14		University of Johannesburg
15		University of Venda
16		University of Zululand
17		Walter Sisulu University
18	University of Technology	Cape Peninsula University of Technology
19		Central University of Technology, Free State
20		Durban University of Technology
21		Tshwane University of Technology
22		Mangosuthu University of Technology
23		Vaal University of Technology

Source: HESA (2012)

3.3.2 South African Qualifications Authority

SAQA was established shortly after South Africa's first democratic election in 1994. The objectives of SAQA are to advance the objectives of the NQF, to oversee the further development and implementation of the NQF and to coordinate the sub-frameworks (SAQA, 2013). Developing policy and criteria for assessment is also the responsibility of SAQA (SAQA, 2013).

In South Africa all qualifications have to adhere to the NQF (Marshall, 2011:9). The establishment of the NQF was originally provided for in the SAQA Act No. 58 of 1995 to set up ways to ensure the quality of education and training in South Africa and to ensure that learners could enter and exit at different levels (Department of Labour, 2001:18). In 2008 the SAQA Act No. 58 of 1995 was replaced by the NQF Act No. 67 of 2008.

The NQF Act No. 67 of 2008 lists the objectives of the NQF as:

- To create a single integrated framework for learning achievements;
- To facilitate access to, and mobility and progression within education, training and career paths;
- To enhance the quality of education and training; and

- To accelerate the redress of past unfair discrimination in education, training and employment opportunities.

In the past the NQF comprised eight levels of learning (Department of Labour, 2001:18-20; Van Rooyen, 2004:17). These levels focused on a person's knowledge and abilities. In 2008 the NQF Act No. 67 was promulgated and made provision for a ten-level framework of achievement. Level descriptors were developed for these ten levels which aim to achieve coherence in learning achievement and enable comparability of qualifications. Level descriptors describe the level of achievement that is expected of a learner at the end of a given level of study (Moon, 2002:16). The level descriptors are arranged in ascending order from level 1 to 10 and become progressively more challenging as the learner moves through the levels (SAQA, 2012) (refer to paragraph 4.2.2 for a discussion on level descriptors). In South Africa it is regarded as important that every qualification be at the appropriate NQF level (Maphosa *et al.*, 2014:356).

SAQA (2012:4) lists the development of learning outcomes and assessment criteria as the first purpose of the level descriptors. It is, therefore, imperative that lecturers in the South African higher education environment be familiar with the NQF levels (appendix A, page 352) in order to develop the learning outcomes for their modules at the appropriate level (Maphosa *et al.*, 2014:362).

3.4 COMPETENCY-BASED EDUCATION

Educational institutions all over the world are aiming to establish CBE (Struyven & De Meyst, 2010:1495). The renewed focus on CBE has come as a result of the shift towards a knowledge-based society and a constructivist approach to learning (Koenen *et al.*, 2015:1) because a disconnection has developed between what is taught at higher education institutions and what is expected of graduates in the workplace. The need for students to be able to apply knowledge instead of merely accumulating knowledge highlighted the need for a competency-based approach to education (Koenen *et al.*, 2015:1).

CBE and OBE proclaim that education be guided by predetermined outcomes and focused on the product and not the process (Morcke *et al.*, 2013:851). The difference between these two approaches is in the detail. Morcke *et al.* (2013:856) found no difference between OBE and CBE in education practice and, therefore, use the term OBE to refer to both OBE and CBE. According to Albanese *et al.* (2008:251), the distinction between a competency and an outcome lies in the difference between what we want our students to have and what we need our students to have. Outcomes are the skills that we want our students to have, while

competencies are the skills that students have to have in order to perform in the workplace (Morcke *et al.*, 2013:856).

In this study the terms competence and competency are used interchangeably. Koenen *et al.* (2015:2) compiled the following definition of competence from different definitions and perspectives in literature:

A competence is a personal capability that becomes visible through showing successful behaviour in a specific contextual situation. A competence is dynamic over time and developable to some extent. A competence consists of an integrated set of knowledge, skills and attitudes, where also personal characteristics and aspects of the professional functioning influence the development of competencies in some way.

Albanese *et al.* (2008:250) define the competencies of a medical practitioner as “knowledge, skills, attitudes and personal qualities essential to the practice of medicine”. Birkett (1993) also relates competence to the workplace and state that competence is the way in which an individual uses his knowledge, skills and attitudes in performing tasks in the workplace. Competencies are attributes of the student and not of the teacher (Morcke *et al.*, 2013:856). It is about the student transforming knowledge into practice (Koenen *et al.*, 2015:2). Cumming and Ross (2007:637) state that the competencies of a student who has completed a degree should be at least equivalent to the learning outcomes.

Hardern (1995) summarised the research on CBE as follows:

- Syllabuses should reflect standards of professional competence;
- Professional examinations and training requirements should be based on the research conclusions that specify relevant knowledge and skills outcomes;
- The role of the parties to the educational process (educational institutions, professional organisations, employers, students) may need to be considered;
- Reliable and cost-effective means of assessing professional competence are needed; and
- The relationship between underlying knowledge and practical performance should be re-evaluated.

The International Federation of Accountants (IFAC) issued an Educational Paper (IEP2) that suggested that accounting institutions develop syllabuses on a competency-based approach to ensure that curriculums are more closely linked with workplace requirements (IFAC, 2003). In 2008 SAICA changed from a knowledge-based approach to a competence-based approach when they introduced their new competency framework which sets out the

competencies that an entry level CA should have (SAICA, 2014:4). In this document SAICA (2014:16) defines the term “competency” as “a broad range of knowledge, skills, attitudes and behaviour that together account for the ability to deliver a specified professional service”.

According to Rivenbark and Jacobson (2014:181), external accreditation bodies are increasingly requiring documentation of how students have acquired the competencies supporting their degrees. The use of OBE in higher education has expanded all over the world during the last decade (Koenen *et al.*, 2015:1) and will continue to do so as instructors embrace the advantages of being able to determine whether specific learning outcomes have been reached (Voorhees, 2001:5).

3.5 ACCOUNTING EDUCATION

In 1986 the Bedford report by the American Accounting Association (AAA, 1986) warned that accounting education required “major reorientation” by the year 2000. The report indicated that accounting education had not kept up with changes in the business environment. In a later report, *Perspectives on education: Capabilities for success in the accounting profession*, accounting education was criticised again. The executives of the then eight largest international accounting firms identified the skills that they deemed necessary for the accounting profession and also highlighted their perception of the weaknesses of the existing accounting curriculums (Kullberg *et al.*, 1989).

In 2000 Albrecht and Sack reported that accounting education in the USA was in serious trouble and significant changes were required for survival. This report stated that accounting education did not provide the necessary skills for lifelong learning. The report was the result of a study on the future of accounting education sponsored by the AAA, the American Institute of Certified Public Accountants (AICPA), the Institute of Management Accountants (IMA) and the “Big Five” accounting firms. Williams (2003:514) notes that, while both Albrecht and Sack (2000) and Kullberg *et al.* (1989) sketched a picture of gloom, they did not offer a solution as to what the content of future accounting education should be.

Slabbert and Gouws (2006:338) summarise the problem as being twofold in nature: The first is that accounting education seems to focus on transferring only knowledge and technical skills and the second is the fact that practising accounting and educating someone in accounting are two different disciplines.

The effects of globalisation such as rapid technological advances and the changes in the corporate world call for a different skills set in entry-level accountants (Fouché, 2013). While

the processing of information has been transformed by information technology, the skill of processing information has become less important while decision-making skills have become more important. Collett (2000) confirms that accounting learners have to have multidisciplinary skills which are needed in practice. Yet, accounting education has failed to make the switch, and accounting curriculums continue to focus on information processing (Herring & Bryan, 2001:315) and technical skills (Fouché, 2013:146). Accounting education should not only provide students with a broad accounting knowledge base, but also teach them to think critically about this knowledge. Students should be able to apply the techniques that they have learned to unstructured problems (Kimmel, 1995:315).

Accounting graduates entering the profession seem to be highly technically qualified, but lacking in soft skills such as communication and interpersonal skills (Hardy & Deppe, 1995:56; Negash, 2010:4). Soft skills can be defined as “the interpersonal, human, people or behavioural skills needed to apply technical skills and knowledge in the workplace” (Weber *et al.*, 2009:356). De Villiers (2010:1) refers to soft skills as the behavioural skills that graduates need to apply in the workplace.

Although most accounting associations have changed to a competence-based approach and accounting firms have called for changes in accounting education (Davidson *et al.*, 2000), educational institutions have not changed the way in which they develop syllabuses, deliver them to their students and assess the students' knowledge (Wessels & Roos, 2009:152). According to Hardy and Deppe (1995:56), most higher educational institutions follow a lecture/problem approach in their accounting programmes. This approach might have been appropriate in earlier years when only the specially selected students attended classes, but the changing environment of higher education, as discussed earlier in this chapter, has necessitated the rethinking of our approach to teaching (Biggs & Tang, 2009:1). In the lecture/problem approach to teaching a lecturer typically gives a lecture on the theoretical content of a subject, then focuses on the practical application by working through a typical examination-style question, followed by a few homework exercises. These exercises, often quantitative in nature, are then discussed during the next contact session. The examination questions are usually in the same quantitative format. Students' communication or interpersonal skills are developed only by giving one or two assignments during the year. Consequently, students resort to memorising formats instead of understanding the principles (Hardy & Deppe, 1995:56). A study by Fouché (2013) confirmed that accounting education still focuses on technical knowledge and, to a lesser extent, on developing other skills. According to Fouché (2013:146), CA(SA)s are highly regarded but, based on the results of

his study at a South African university (Fouché, 2013), he questions whether their high level of technical skills would be enough to keep their edge.

3.6 EDUCATION AND TRAINING OF CHARTERED ACCOUNTANTS IN SOUTH AFRICA

SAICA is widely recognised as the foremost professional body for CA(SA)s. SAICA (2009) refers to itself as “South Africa’s pre-eminent accountancy body”. SAICA is accredited by the Independent Regulatory Board for Auditors (IRBA) which enables SAICA members to become registered auditors (SAICA, 2014:5).

In order to qualify as a CA(SA) a candidate has to enrol for a three-year undergraduate BCom Accounting or equivalent degree with a SAICA-accredited university. After completion of the degree the candidate is required to complete a one-year postgraduate programme, known in SAICA as the CTA (SAICA, 2015). This is often presented in the form of an honours degree with the main focus on Financial Accounting, Auditing, Taxation, Financial Management and Management Accounting. Upon completion of the CTA the candidate is required to enter into a training contract of at least three years with a registered training office (SAICA, 2015). After completing the CTA the prospective candidate has to pass two qualifying examinations set and administered by SAICA. The first of these examinations is the Initial Test of Competence (ITC). In order to write this examination the candidate must have passed the CTA. Candidates usually write this examination in the first year of their training contract. The second examination is the Assessment of Professional Competence (APC). Candidates qualify for writing this examination if they have passed the ITC, have completed a minimum of 20 months of a registered training contract with an accredited training office, and have successfully completed a professional programme with a registered provider (SAICA, 2015).

Potential CA candidates have to pass through all of the above before being able to enter the profession. Because of the prescriptive nature of these courses, learners do not have a choice regarding the modules included in their degree. SAICA provides a detailed syllabus that universities have to follow (Venter & De Villiers, 2013:1255).

In 2008 SAICA changed from a knowledge-based approach to a competence-based approach when they introduced their competency framework setting out the competencies that an entry-level CA should have upon entry into the profession (SAICA, 2014:4). SAICA’s competency framework provides guidelines for academic institutions for preparing their learners for the first standard setting examination. These guidelines include the following

competency areas: strategy, risk management and governance; financial management; auditing and assurance; accounting and external reporting; taxation; and management decision making and control. SAICA defines competency as “the particular tasks that CAs perform while applying, or bringing to bear, the pervasive qualities and skills that are characteristic of CAs(SA) to the level of proficiency defined as appropriate by the profession” (SAICA, 2014:16). The levels of proficiency are explained in the competency framework and indicate the levels of proficiency required for each competence. The levels of proficiency are “awareness” (level A), “initiates the task” (level I) and “completes the task” (level X) (SAICA, 2014:19). These levels will be explained in more detail in chapter 4.

The competences required of a CA at point of entry into the profession are not limited to technical knowledge, but include other skills and competencies as illustrated in Figure 3.1 (SAICA, 2014:10):

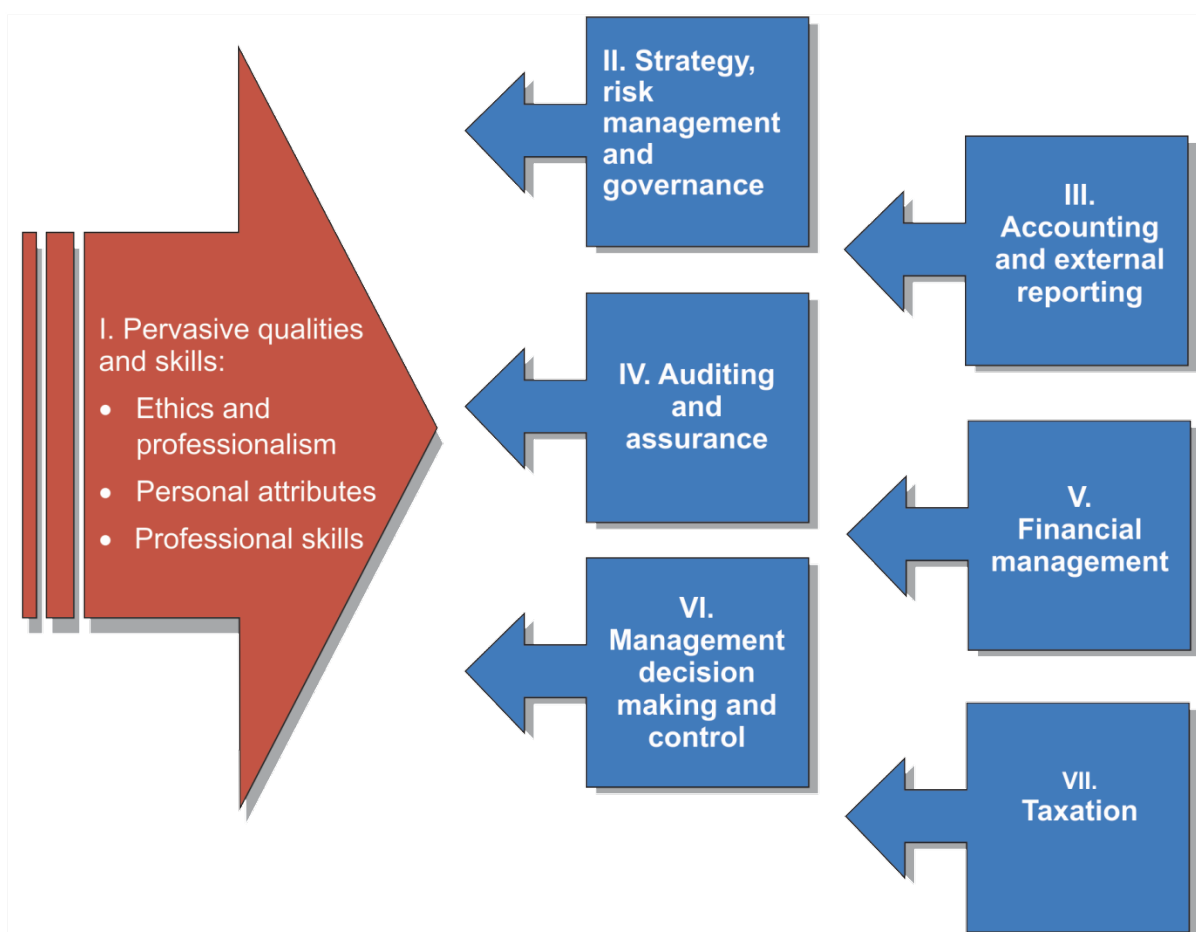


Figure 3.1: Skills required of a prospective CA upon entry into the profession

Source: SAICA (2014:10)

3.7 ROLE PLAYERS IN PROFESSIONAL ACCOUNTING PROGRAMMES

Stout *et al.* (2005:400) mention that planning and developing a programme should be stakeholder based, taking into account the perspectives of both internal and external stakeholders. A typical accounting programme will be influenced internally by institutional documents and externally by stakeholders such as accounting firms, alumni and professional accounting bodies (Stout *et al.*, 2005:398) such as SAICA, the Institute of Chartered Management Accountants (CIMA) and the South African Institute of Professional Accountants (SAIPA) in South Africa. All these professional accounting bodies provide their members with competency guidelines, such as the competency framework document of SAICA.

The responsibility for quality assurance in higher education where professional bodies are involved remains a contentious issue (Ballim *et al.*, 2014:1142). Three parties have a direct interest in the training of CAs at South African universities: the universities themselves, the professional body (SAICA) and the CHE through the HEQC. These parties have different but complementary roles in the process (Ballim *et al.*, 2014:1150). Professional bodies such as SAICA have the purpose of safeguarding public interest, representing the interest of the practitioners and advancing the interest of the profession itself (Ballim *et al.*, 2014:1147). According to Van der Merwe *et al.* (2014:279), the assurance of quality in South African CA programmes is delegated to SAICA by SAQA. SAICA is recognised as an Education and Training Quality Assurer (ETQA) and thereby accredits certain programmes for the training of CAs (SAICA, 2016).

SAICA ensures quality control by providing universities with accreditation to provide training of CAs. As mentioned above, this training allows candidates access to the ITC. Universities can either have full accreditation status (status 1), accredited but needing improvement (status 2) or accredited subject to meeting SAICA's requirements (status 3). The universities accredited by SAICA are as follows (SAICA, 2016):

- Monash South Africa (status 2)
- Nelson Mandela Metropolitan University (status 1)
- North-West University (status 1)
- Rhodes University (status 1)
- University of Cape Town (status 1)
- University of Fort Hare (status 2)
- University of the Free State (status 1)
- University of Johannesburg (status 1)

- University of KwaZulu-Natal (status 2)
- University of Limpopo (status 1)
- University of South Africa (UNISA) (status 2)
- University of Stellenbosch (status 1)
- University of Pretoria (status 1)
- University of the Western Cape (status 2)
- University of the Witwatersrand (status 1)

Accreditation implies that an institution has the necessary resources in place to deliver the programme effectively at the required level of standard and that the programme meets SAICA's standards in terms of learning and teaching (SAICA, 2016). As part of its accreditation reviews, SAICA requires that universities present detailed module outlines including aims, learning outcomes, content, how pervasive skills will be developed, hours of instruction, prescribed textbooks and assessments (SAICA, 2013). Accreditation with SAICA is viewed as essential by all universities as established by Venter and De Villiers (2013:1257) when they interviewed the Heads of Departments (HODs) of the SAICA-accredited universities. These HODs revealed that they would never consider giving up their accreditation. SAICA undertakes monitoring visits to accredited universities in order to determine whether accreditation can be maintained, and these visits are taken seriously by the relevant universities (Venter & De Villiers, 2013:1258).

According to Van der Merwe *et al.* (2014:279), this could mean that universities base their curriculums and assessment on the SAICA competency framework instead of on the HEQF. In turn, this implies that the focus is more on technical complexity, contextualisation and professional skills and less on critical thinking (Van der Merwe *et al.*, 2014:279). Van der Merwe *et al.* (2014:285) indicate that this focus on meeting accreditation expectations restricts academic freedom which, in turn, affects the curriculum and assessment and even violates the frameworks as set out by government. This influence that SAICA has on academia is also evident from research by Venter and De Villiers (2013). SAICA's influence on academia in South Africa tends to be more severe than in other countries (Van der Schyf, 2008; Venter & De Villiers, 2013:1251).

3.8 FINANCIAL MANAGEMENT AND MANAGEMENT ACCOUNTING

Financial Management and Management Accounting (management decision making and control) are two of the core areas identified by SAICA in their competency framework (SAICA, 2014). Financial Management is concerned with how or where organisations should

invest their money and how these investments should be financed (Correia *et al.*, 2015:1-3; Skae *et al.*, 2014:1). Firer *et al.* (2012:2) add to this the management of everyday activities such as paying creditors and collecting from debtors. Management Accounting is concerned with measuring and analysing information in order to provide information for internal decision making within an organisation which would improve decision making and the effectiveness and efficiency of operations (Drury, 2012:6; Horngren *et al.*, 2015:26). In doing this, the goals of the organisation can be achieved (Horngren *et al.*, 2015:26). Lakshmi (2013:234) noted Finance as one of the core subjects in any accounting programme. This is also the view of Lin *et al.* (2005) who found that Finance was one of the top three knowledge areas expected of accountants.

In this thesis Management Accounting and Financial Management as a discipline is referred to as Management Accounting and Finance (MAF).

3.9 THEORETICAL CONSTRUCTS TO LEARNING IN HIGHER EDUCATION

3.9.1 Learning

Gibbs and Simpson (2004) provide a checklist of conditions that support student learning: students should have enough assignments to ensure sufficient study time; the tasks should orient students towards spending enough time and effort on the most important aspects of the module; the tasks should engage students in appropriate, productive learning activity; efficient, regular feedback with enough detail should be provided to students; the feedback should concentrate on the students' learning and not their characteristics; feedback should be timely so that it can still make a difference in further learning; feedback has to be appropriate to the purpose of the assignment and in relation to the students' understanding of what they are supposed to do; and feedback has to be received, attended to and acted upon by the students.

3.9.2 How students learn

Student approaches to learning influence the level of learning achieved. Two approaches of students to learning are the deep learning and surface learning approaches (Biggs & Tang, 2009:22; Bloxham & Boyd, 2011a:17; Ramsden, 2003). Students' approaches to learning will depend on their conception of learning as well as the intention they have when studying (Bloxham & Boyd, 2011a:17). The surface approach to learning occurs when the student tries to accomplish the task with as little effort as possible or without understanding the material, but still appearing to meet the module objectives. The task is seen as an

“unwelcome external imposition” (Struyven *et al.*, 2005:326). An example of this is when the student memorises the content instead of understanding it (Biggs & Tang, 2009:22; Bloxham & Boyd, 2011a:17). This does not imply that memorising is necessarily a surface approach to learning. It only becomes a surface-level approach when understanding is required but memorisation is used to give the impression that understanding did in fact take place. Only the lower cognitive level activities are engaged in the surface-level approach (Biggs & Tang, 2009:22).

The deep approach to learning, on the other hand, is when the student uses the most appropriate cognitive activities in the completion of the task, relates information and ideas together, and deals with the task appropriately and meaningfully (Biggs & Tang, 2009:24). Students who follow this approach comprehend the overall meaning of their studies, are interested in their studies (Lucas, 2001:161; Race & Brown, 2001) and derive enjoyment from their studies (Lucas, 2001:161).

A study Byrne and Flood (2004) showed that more than 60% of accounting students adopted the surface approach to learning. This will, ultimately, lead to a lower understanding of concepts, and students will lack the knowledge, skills and competencies required for the accounting profession. Lucas (2001:163), however, warns that the surface approach to learning should not necessarily be discouraged. He argues that some sciences with algorithmic content, such as accountancy or mathematics, depend on some form of rote memorisation. Subjects that require an emphasis on details and procedure also involve an initial form of rote memorisation (Entwistle & Ramsden, 1983:194).

3.9.3 Learning theories

Learning theories involve ideas on how or why change occurs with regard to teaching and learning (Smith, 2003). These theories describe the process whereby people learn, and in so doing provide an understanding of the complex process of learning. It is important that educators understand learning theories, because they provide a basis from which to form expectations on how students will react to or be affected by certain learning activities and assessments (Anagnostopoulou, 2002:4). According to Anagnostopoulou (2002:11) these theories provide educators with a systematic approach to the development of the learning environment, and the use thereof will lead to improved learning.

Edward Thorndike, Lev Vygotsky and John Dewey can be considered as the most prominent learning theorists (Mostyn, 2012:229). Thorndike proposed that learning occurs as a result of a stimulus and a response. Learning occurs when a positive feeling is experienced as a result of a stimulus, which then reinforces the response. This was the beginning of the

behaviourist theory which was later developed by B.F. Skinner. Vygotsky and Dewey, on the other hand, proposed that learning occurs as a result of social interaction and experience. This is now known as the constructivist approach (Mostyn, 2012:229).

3.9.3.1 **Behaviourism**

Behaviourism assumes that a student's behaviour is learned by watching others. It focuses on the situation in which a behaviour will be performed and the consequences that will follow (Tuckman & Monetti, 2011:259). It is, therefore, a way in which a required outcome could be achieved (Anderson *et al.*, 2001:13). The theory of behaviourism assumes that learning takes place through repetition that enforces a certain response from the student (Reid, 2005). Lecture-based learning would fit into the theory of behaviourism: The teacher presents a lecture and afterwards tests the retention of knowledge by presenting the students with a test or quiz (Smith, 2004:6). The teacher's role is to ensure that the learning goals developed by him/her are achieved by the student by providing the student with structured learning activities (Smith, 2004:6). The learner is a passive recipient of information, and learning takes place by reinforcement through feedback to the student. The link with prior knowledge is limited (Smith, 2004:5).

According to behaviourist theory, student learning is affected by the external environment or teacher. It is the events taking place in the environment that cause a student's behaviour to change (Hassan, 2011:330). Learning takes place in a sequential manner, and skills are acquired one at a time (Anagnostopoulo, 2002:2). Every new skill that is acquired by the learner builds on the skills acquired previously (Anagnostopoulo, 2002:2). Learning in behaviourist theory occurs sequentially and, therefore, assessment has the purpose of ensuring that the student has mastered certain content. Good grades usually indicate that learning has taken place and are seen as a source of extrinsic motivation (Adams, 2006:252).

In the 1950s when Bloom's Taxonomy was published (refer to paragraph 4.3.3.1), education was extensively influenced by behaviourist learning theories (Amer, 2006:216). Since then new learning theories have emerged suggesting that students are responsible for their own learning, cognition and thinking (Amer, 2006:216). As a result behaviourism is almost out of use today in higher education (Mostyn, 2012:229). However, behaviourism has left a legacy of objective accountability, testing with feedback, sequencing, identifiable steps and recognition of stimulus–response motivation (Mostyn, 2012:230).

3.9.3.2 **Constructivism**

The school of constructivism rejects the theory of behaviourism on the grounds of the latter's view of the student as a passive receptor of knowledge and information (Banet & Ayuso, 2003). Behaviourism can, for example, be used to teach students accounting knowledge, but it will not promote decision making, application skills, communication, teamwork and self-management (Wahida *et al.*, 2011:15).

Constructivism is a process whereby learners cumulatively construct their own knowledge and understanding of reality based on past or current knowledge through both own, individual and social activity (Biggs, 1996:348; Biggs & Tang, 2009:21; Mostyn, 2012:230; Tuckman & Monetti, 2011:311) for which the brain has actually been intended (Von Glasersfeld, 2001). Learners, on an individual basis, have to discover and convert complex knowledge in order to learn (Slavin, 2003:257). Therefore, knowledge is not incurred as a result of direct instruction, and the learner is seen as central in the learning process, not the teacher (Biggs, 1996:348; Biggs & Tang, 2009:21). According to the constructivist approach, what the student does, is more important than what the teacher does in order to determine what is being learned (Shuell, 1986:426). As Slavin (2003:257) claims: "Teachers cannot simply give students knowledge". Because of the students' active role in the learning process constructivism is also referred to as "student-centred instruction" (Slavin, 2003:258).

The theory of constructivism originated from the work of Jean Piaget in the 1960s and 1970s. This theory contains a few pedagogical methods, namely self-regulated learning, cooperative learning, discovery learning, problem-based learning and learning styles. These methods were fashionable in the 1970s, 1980s and 1990s, with some of them still being used today. The similarity between these methods is that the role of the teacher is only that of a facilitator who advises students interactively. The responsibility for learning lies with the student (Mostyn, 2012:230). The constructivist approach makes use of cooperative learning, as students are expected to understand concepts more easily when discussing subject matter with one another (Slavin, 2003:261). Discovery learning, where students are expected to actively engage with concepts and principles in order to learn, is also a critical component of constructivism (Slavin, 2003:261). Another concept of constructivist theories of learning is self-regulated learning where the student has knowledge of learning strategies and knows when and how to use them (Slavin, 2003:262).

The constructivist approach to teaching follows a top-down approach rather than a bottom-up approach. This implies that the student is presented with an actual complex problem right

from the start instead of teaching them to do the basics first. The student then figures out the basic skills required to solve the problem (Slavin, 2003:260).

Despite the widespread acceptance of constructivism, some shortcomings have been identified. Some studies revealed that constructivist methods did not increase learning efficiency for students who were new to a subject area (Kalyuga *et al.*, 2003; Kirschner *et al.*, 2006; Mayer, 2004; Sweller *et al.*, 2007). Biggs (1996:349) warns that the constructivist approach should not be a prescriptive approach that involves a specific method of teaching, but an attitude towards teaching and an awareness of the learner instead.

Constructivism is also relevant to accounting education. Mostyn (2012:230) uses the example of an accounting case study as being a constructivist approach. The constructivist approach for the teacher to address the question would be to facilitate a discussion between the students on possible answers, principles and rules while validating each student's response as constructive. Alternatively, the teacher could give the question as a group or individual assignment without requiring one correct answer. Other examples of constructivism in accounting education is the renewed emphasis on improving content relevance and the widespread acceptance of the case study, as well as the interest in group project assignments (Mostyn, 2012:230). Highfield and Bisman (2012:4) mention that these constructivist approaches are underutilised in accounting education. But, according to Mostyn (2012:231), there are no studies in accounting education which proves that the constructivist methods make learning more efficient. Mostyn (2012:231) also reports that, with effectiveness studies measuring whether certain methods resulted in better outcomes than other methods, some studies showed improved results while others did not.

According to Rust *et al.* (2005:232), some of the problems of assessment could be overcome and learning could be enhanced if the principle of constructivism were applied in the process of assessment. An important requirement of applying constructivism to the assessment process is that the whole curriculum has to be constructively aligned. Constructive alignment implies that everything in the curriculum from the learning outcomes, assessment criteria and the teaching methods to assessment tasks be interconnected and follow on one another (Rust *et al.*, 2005:232). Assessment has to be embedded within the learning and teaching process (Adams, 2006:252). Rust *et al.* (2005:237) also state that assessment cannot be treated differently from learning if a constructivist approach to learning is followed, but that assessment requires the same level of participation and engagement as learning does.

3.10 SUMMARY

In this chapter the context of the training of CA(SA)s within the higher education system was set. The challenges facing higher education, and more specifically accounting education, were addressed. Globalisation, a shift to a knowledge-based economy and lifelong learning have caused society to question whether the traditional structures of higher education could still deliver the requirements. Accounting education faces the challenge of adapting to the requirements of the accounting profession. It has been shown that, although the accounting profession requires a whole new skills set for accountants entering the profession, accounting education is not delivering in this expectation and is still focusing on technical competence.

In South Africa all qualifications have to comply with the NQF in order to be recognised. SAQA provides ten level descriptors that can be used for the development of module outcomes and assessment criteria. These level descriptors provide general guidance for the development of module outcomes and not specific curricular content. It is imperative that all South African educators be familiar with these level descriptors to develop learning outcomes at the correct level for every module within a qualification.

The HEQC is responsible for quality assurance in the South African higher education sector. However, quality assurance of CA programmes in South Africa is delegated to SAICA. South African universities are accredited by SAICA for the provision of chartered accountancy training, which ensures the quality of the programmes. Accreditation with SAICA is of paramount importance to South African universities and, therefore, SAICA has a considerable influence on academia. This could mean that South African universities base their curriculums on the competency framework of SAICA and not on the HEQF which, in turn, could lead to a focus on technical capabilities and professional skills instead of critical thinking.

With this, the context of accounting education within the higher education sector of South Africa has been set, and the first secondary objective (paragraph 1.5.2.1, page 11) has been reached. Chapter 4 will focus on the alignment of learning outcomes to an educational framework.

CHAPTER 4:

DEVELOPING LEARNING OUTCOMES IN THE ASSESSMENT PROCESS

4.1 INTRODUCTION

This chapter aims to conceptualise the process of developing outcomes considering the role of SAQA, SAICA and institutional policies, as well as other conceptual frameworks such as taxonomies of learning (objective 1.5.2.2, page 11). In chapter 3 the roles of SAICA and SAQA in CA programmes in South Africa were addressed. It was mentioned that SAQA delegates the responsibility of quality control to SAICA who accredits professional accounting programmes. This, however, raised the question of whether this accreditation restricts academic freedom which, in turn, affects the curriculum and assessments. Van der Merwe *et al.* (2014:285) argue that universities could even be violating government frameworks as a result of complying with accreditation criteria by basing their curriculums on the competency framework of SAICA instead of on the HEQF.

In the ever-changing business environment, the role of accountants is changing too (Mohamed & Lashine, 2003; Palm & Bisman, 2010:180; Wessels & Roos, 2009:148). Accountants were traditionally labelled as “bean counters” and focused on financial calculations and recording of figures. This has changed as accountants are becoming more and more involved in consulting and business advisory services (Pan & Perera, 2012:92). For this reason, accountants need to be equipped with a new and improved set of skills (Mohamed & Lashine, 2003:4). As mentioned in chapter 3, these changes have led to a call for change in accounting education.

Developing the skills and attributes required by the accounting profession links closely with curriculum design (Palm & Bisman, 2010:182). According to Kuhn and Rundle-Thiele (2009:352), student learning should be the most important aspect when designing a course curriculum. Curriculums of professional accounting programmes have to be informed by educational frameworks. Educational frameworks include conceptual frameworks such as Bloom’s Taxonomy and frameworks such as CBE. The level descriptors provided by SAQA, as well as SAICA’s competency framework, is based on CBE and, thus, serve as frameworks on which curriculums could be based.

Changes in higher education have accentuated the need for CBE whereby the outcomes of what students have learned can be measured. Nasrallah (2014:258) contends that, although it might not be the magic solution to all educational problems, the development of learning outcomes has a pivotal role to play in assessing teaching and learning. If learning outcomes are stated clearly, it could lead to improved communication between students and lecturers and increase the level of student learning (Blumberg, 2009:96). It could also minimise the levels of anxiety for students because they would know exactly what is expected of them and they would be able to gain a better understanding of where the module fits into the programme as a whole (Biggs & Tang, 2009).

With this in mind, chapter 4 will explore the educational frameworks on which accounting programmes can base their curriculums, focusing on SAQA, the SAICA competency framework and taxonomies of learning. Because it has been shown that curriculums should be “driven by objectives” (Herring & Williams, 2000:3), the development of learning outcomes as part of module development will be discussed.

4.2 MODULE DEVELOPMENT

Syllabuses provide direction on how individual courses should be delivered to students. The challenge is in integrating the curriculum, design and subsequent delivery of the syllabuses and the assessment to achieve maximum student learning (Wessels & Roos, 2009:148). Maximising student learning should be the key goal (IFAC, 2003; Murphy, 2006; Wessels & Roos, 2009:148). Syllabuses should be developed from the curriculum and course objectives, and not from the content of textbooks (Herring & Williams, 2000:9; Wessels & Roos, 2009:148), and assessments, when plotted in the framework, should be aligned with these stated objectives (Anderson *et al.*, 2001:96). The question should be asked whether inferences made from the assessment activities lead back to the objective (Anderson *et al.*, 2001:96).

Much more collaboration is required when basing the curriculum on objectives than on subject matter. Learning outcomes should not be developed in isolation, but should be identified collectively by all persons involved through research, reflection and collaborative discussions (Herring & Williams, 2000:5; Suskie, 2009:126). Herring and Williams (2000:9) suggest that a curriculum and assessment committee be established to oversee the process of constructing the programme goals and curriculum objectives and to gather evidence and report on achievement. Light *et al.* (2009:83) concur by suggesting that previous students be consulted in this process.

Course or module design has traditionally focused on the content of a module and not on students' learning as a result of the module. This has often resulted in confusion as the students are not certain as to what are expected of them (Light *et al.*, 2009:81). As the outcomes-based approach to education has become more generally accepted, the focus has turned to the technical aspects regarding learning outcomes and level descriptors, as well as their role in assessment (Moon, 2002:9).

Moon (2002:16) provides the following map for the development of a module (Figure 4.1, page 68). Although it is a map for the development of a module, it can be used to check the design for consistency after the initial development.

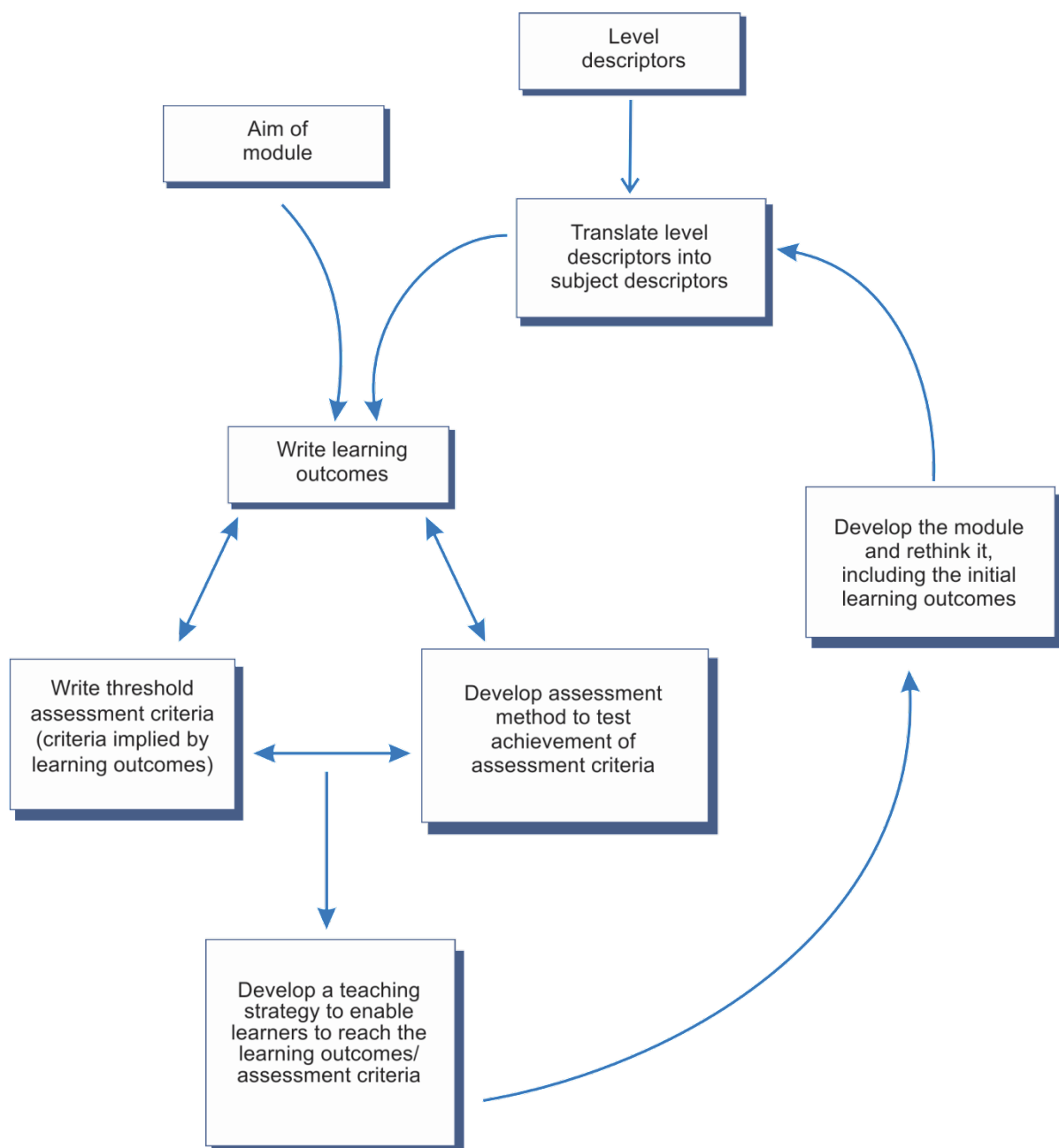


Figure 4.1: Basic map of module development

Source: Moon (2002:16)

Moon (2002:18) indicates that the map should be used several times in order to ensure the achievement of a clear linkage between the different aspects thereof. She also stresses the fact that the most important linkage is that between the learning outcomes and assessment criteria. Both the level descriptors and the aim of the module guide the development of the learning outcomes for the module. The level descriptors provide the base for the writing of the learning outcomes, because they ensure that the outcomes clearly relate to a specific level. In turn, the learning outcomes lead to the assessment criteria. Although assessment criteria can be developed from the learning outcomes or the assessment method, it has to relate to the learning outcome. Assessment tasks should be designed with the purpose of testing whether the learning outcomes have been achieved. The teaching strategy is designed in relation to the assessment process with the aim of ensuring that the student can reach the level of achievement as set out in the assessment criteria. The level descriptors for a given level are fixed, but the rest of the map is flexible and any of the other elements can be changed (Moon, 2002:17-18).

According to Light *et al.* (2009:80), the development of a module can be summarised by the answer to the following four questions:

- i. What learning outcomes do you want your students to achieve as a result of taking this module?
- ii. How would your module help your students to achieve these outcomes?
- iii. How would you know whether the students on this module have indeed achieved these learning outcomes?
- iv. How would you know whether and how your teaching has contributed to your students' learning outcomes?

The fact that the term “learning outcomes” features in all four of the above questions highlights the importance of alignment of all the elements of a module (Light *et al.*, 2009:81).

4.2.1 Aims

Clarifying the aim or goal of the module and translating these into learning outcomes are crucial steps in preparing for assessment (Gainen & Locatelli, 1995:43). Moon (2002:16) defines **the aim** as “the general direction or orientation of the module in terms of its contents and sometimes its context within a programme”. Light *et al.* (2009:82) agree that it refers to what the teacher is generally trying to achieve, while Brabrand and Dahl (2008:7) describes the aim as “what ... the students [are] to learn”. Brabrand and Dahl (2008:7) note that, in determining the overall goal of a module, the lecturer should consider both competencies

and content. These goals or aims should be in line with the mission of the university and with the goals as set out by accounting bodies or institutions (Gainen & Locatelli, 1995:43).

Understanding the true goal of a module will lead to more effective assignments that are evaluated more fairly and appropriately (Suskie, 2009:129). Suskie (2009:129) does not see the setting of goals as a once-off event, but as an ongoing process in which they are evaluated and refined after implementation. It is advised that this not be done in isolation, but that all internal and external stakeholders are consulted. These stakeholders include members of faculty, students, local practitioners and professional accounting bodies (Gainen & Locatelli, 1995:43).

4.2.2 Level descriptors

Level descriptors assist educators in formulating the learning outcomes and criteria for assessment (SAQA, 2012:5). Level descriptors describe the achievement expected from a learner at the end of a given level of study (Moon, 2002:16). These levels of study become progressively more challenging as the learner moves through the levels. The following definition of level descriptors is presented by Gosling and Moon (2001): “Level descriptors are generic statements describing the characteristics and context of learning expected at each level against which learning outcomes and assessment criteria can be reviewed in order to develop modules and design credits at the appropriate level”.

According to Moon (2002:24), level descriptors should focus on the following:

- Complexity of knowledge and understanding;
- Standard of cognitive skills such as analysis, synthesis, etc.;
- Other skills;
- Practical skills (e.g., using information technology);
- The expected responsibility of the learner;
- The autonomy or independence of the learner; and
- Guidance required by the learner.

4.2.3 Learning outcomes

The concept of “learning outcomes” originated in the middle of the 20th century when the focus was on the accountability of educators because of increased public expenditure (Hussey & Smith, 2002:222). Educators were expected to make their practices more

accountable and scientific, and expected achievements could no longer be “opaque and woolly”, but had to be explicit, precise and measurable criteria (Hussey & Smith, 2002:222).

Learning outcomes are more specific than the aim of the module (Light *et al.*, 2009:82). Learning outcomes can be defined as that which the learner is expected to know, understand or be able to do after completing a module, as well as how that learning has to be demonstrated (Gainen & Locatelli, 1995:43; Moon, 2002:17). Hussey and Smith (2002:223) add by stating that learning outcomes are a precise specification of knowledge and skills. According to Biggs and Tang (2009:55), learning outcomes should be written from the students' perspective, indicating the level of achievement that is expected as a result of the teaching/learning activities in which they are to take part. Therefore, learning outcomes have to be precise and specific statements of knowledge, understanding, abilities and skills required that can be assessed objectively.

The term “learning outcomes” is often used interchangeably with other terms such as “objectives” (Light *et al.*, 2009:82), “competencies” or “achievements” (McGourty *et al.*, 1999). This could cause confusion among educators (McGourty *et al.*, 1999). Biggs and Tang (2009:70) suggest that the term “intended learning outcomes” (ILO) be used instead of “objectives”, because it emphasises that it is about what the student has to do rather than what the teacher has to do. In this study, the terms “learning outcomes” and “learning objectives” are used interchangeably.

Research on assessment has shown that curriculums should be driven by learning outcomes (Herring & Williams, 2000:2). Herring and Williams (2000:4) envision a curriculum where the objectives are clear and allow measurement. They mention that some objectives may be technical, but that the majority should be based on other skills such as communication, decision making, etc. The objectives should be somewhere between too fuzzy and too precise. The wording of the learning outcomes is also critical. Hussey and Smith (2002:224) argue that there is a need for a “vocabulary of precise descriptors” in order to facilitate the development of exact learning outcomes, as well as a distinction between different levels and even between different grades. They warn that learning outcomes have to be specified with precision and differ according to the level of teaching and learning, and that one has to be able to distinguish between the different grades.

Brabrand (2008:10) also suggests that the learning outcome should start with “after the course the student should be able to ...”. The learning outcome should be stated in the form of competence (Brabrand, 2008:10) and the focus should be on what the student should

learn and not on the topics that should be covered (Biggs & Tang, 2009:52; Brabrand, 2008:10). This clarifies what the teaching/learning activities should be and what the student needs to do in the assessment (Biggs & Tang, 2009:52).

There are two approaches to developing learning outcomes, i.e. the rational and the reflective approach. In the rational approach, learning outcomes are precise, specific, uniform outcomes provided in a “linear and causal way” (Light *et al.*, 2009:84). This approach is related to the theory of behaviourism. The achievement of the learning outcomes is also measured by formal standardised procedures (Light *et al.*, 2009:84). This is often the case in professional programmes such as accounting programmes where professional bodies have formal specifications and accreditation is based on adhering to these specifications. But, according to Light *et al.* (2009:85), this does not have to exclude the reflective approach completely. The reflective approach is more expressive, and modules within this approach are designed to provide a rich environment of learning experiences to develop creativity, flexibility, open-mindedness and complex understanding (Light *et al.*, 2009:85).

Other than the different approaches to learning outcomes, teachers also have to decide on the different levels of complexity and standard (Light *et al.*, 2009:86). When developing learning outcomes a distinction has to be drawn between generic, specific, basic, transferable and non-transferable skills, as well as different kinds of knowledge and understanding (Hussey & Smith, 2002:223). Biggs and Tang (2009:80) suggest that the following be considered when developing and writing intended learning outcomes:

i. Decide what kind of knowledge is to be involved

Biggs and Tang (2009:72) distinguish between kinds of knowledge: declarative knowledge and functioning knowledge. Declarative knowledge refers to knowing about things. This type of knowledge comes from research and not from personal experience. It is the knowledge that is publically available in libraries, textbooks and from lecturers. Students are usually expected to “declare” this knowledge back by using their own words and own examples. Functioning knowledge uses declarative knowledge as foundation to solving problems.

ii. Select the topics to teach

Biggs and Tang (2009:82) point to possible tension between coverage and depth of understanding. They pose the question of whether teachers want their students to cover a wide range of topics or whether they should be able to really understand what they have learned. Light *et al.* (2009:88) warn against course overload. They state that

modules with a content overload lead to knowledge reproduction and basic understanding. They go further and state that this is not even always the case and that most of the time students do not even have knowledge of more than a third of the content.

iii. Level of understanding intended

The question should be asked whether it is an advanced or introductory course and also why the students are enrolled for the module. Different levels and kinds of understanding will be applicable for different purposes (Biggs & Tang, 2009:82). The learning taxonomies such as Bloom's Taxonomy can be used to assist in deciding on the level (Light *et al.*, 2009:85).

Ralph Tyler (1949) argued that an objective has to refer to a certain type of knowledge required and contain a certain behaviour that would prove that the student mastered the skill relative to that knowledge. An objective or learning outcome usually contains a verb referring to the applicable cognitive process, and a noun indicating the required knowledge (Anderson *et al.*, 2001:12). The learning outcomes should contain action verbs that allow assessment to occur and that indicate how the outcome can be achieved, such as "reflect on", "explain", "design" or "describe" (Biggs & Tang, 2009:54; Herring & Williams, 2000:7). Biggs and Tang (2009:70) warn that verbs should be clear and define what the student's learning should look like after learning has taken place. For example, the verb "understand" does not convey the level of performance expected from the student. A learning outcome should give a clear indication to the student of "what to do and how well to do it" (Biggs & Tang, 2009:71). Brabrand (2008:9) also warns against the use of understanding outcomes such as "to understand X" or "to be familiar with Y". These understanding outcomes should instead be stated in terms of a measurable competence. Learning outcomes need to be formulated in such a way that they clearly indicate the verb at the appropriate level of understanding or performance required, the topic content that should be addressed and the context in which the verb is to be used (Biggs & Tang, 2009:83).

Brabrand (2008:7) advocates that teachers think in terms of competence and not in terms of content. It is important that the outcomes be stated in terms of what the students have to do and not the topics that the teacher has to cover in class. Light *et al.* (2009:85) agree that, although it is necessary to specify course content, teachers cannot think about content in terms of a list of topics that need to be covered. The curriculum informs the student about the topics that will be covered, but they also need to know the level at which they have to understand the topic (Biggs, 2003).

There is a question mark surrounding the clarity, explicitness and objectivity of learning outcomes. Hussey and Smith (2002:223) contend that, although aims and objectives can be stated in clear terms, they might still be subjective and represent that which the teacher wishes or hopes to achieve. Learning outcomes are perceived to be precise, because they are interpreted by teachers who are already familiar with the context. The same problem arises with understanding. The exact level of understanding required can be interpreted in a precise way only if there is a prior understanding of exactly what is expected at each level (Hussey & Smith, 2002:226). Teachers may well have this prior understanding, but the students do not. Students rely on the learning outcomes and assessment criteria to determine what is expected of them. So, although the learning outcomes do set out what is expected, the student needs to judge the level of requirement by using the level of teaching, learning activities, reading, etc., as further reference (Hussey & Smith, 2002:226).

Learning outcomes are central to the whole process of constructive alignment (Biggs & Tang, 2009:60). Learning outcomes make it possible to describe precisely what will be learned in a certain module and exactly how it can be assessed (Hussey & Smith, 2002:224). Treleaven and Voola (2008) showed the value of constructive alignment for integrating graduate attributes into a marketing course. It involved integrating the graduate attributes required into the learning outcomes, teaching/learning activities and the assessment tasks. However, in a study by Fitzpatrick and Byrne (2007:28) which investigated students' knowledge of the learning outcomes concept and the application of learning outcomes in their degree, it was shown that both the concept of learning outcomes and the learning outcomes of their degree were not clear to most students.

Hussey and Smith (2002:223) point out the significant role that learning outcomes play in accountability. Learning outcomes allow for the whole process to be monitored and the performance of teachers and students to be evaluated. With learning outcomes, it is possible to objectively determine the progress of the student as well as the effectiveness of the teacher, and the suitability of the teaching methods can be monitored and audited (Hussey & Smith, 2002:224).

Although the merits of using clear and explicit learning outcomes are evident, there are some critique against the use of learning outcomes. Hussey and Smith (2002:224) claim that, although there is no empirical evidence to prove it, teachers do not favour the use of learning outcomes. Even though learning outcomes are useful and meaningful, teachers regard learning outcomes as an inconvenient task and not a meaningful exercise. The reason for

this might be that they are not yet convinced of the merits of using well-developed learning outcomes.

Another critique against learning outcomes is that the level of achievement will not be the same for all subjects (Hussey & Smith, 2002:227). These authors use the example of a medical module where the requirements for the first year are mainly descriptive whereas in a language model the students are expected to evaluate and criticise from the first year.

Once the learning outcomes have been defined by stating the topics to be covered and the level of understanding for each topic, it is necessary to determine how to get the students to do this. The learning outcomes have to be embedded in the teaching/learning activities and in the assessment tasks (Biggs, 2003).

Ambiguous verbs should also be avoided when developing learning outcomes. An example of an ambiguous verb is “state”. When students are required to state something, they can merely state the information required by remembering what they were taught, or they can state information by making inferences from the information provided in a case study. In this case it relates to the dimension of understanding. Students can also state the required by using a set of steps that they were taught, in which case it becomes applying procedural knowledge. Finally, students could also make their point by differentiating key points from the supporting material, and thereby it lies within the analyse cognitive level. Airasian and Miranda (2002:250) warn that lecturers should use the six process categories in the Revised Taxonomy as verbs when developing learning outcomes to avoid confusion. Airasian and Miranda (2002:160) agree that verbs do not always provide a clear indication of the cognitive level and that verbs such as “write”, “evaluate” or “create” could be confusing.

4.2.4 Assessment criteria

The purpose of assessment criteria is for students to monitor their progress and know in advance how the quality of their performance will be judged (Price *et al.*, 2008:1; Sadler, 2005:189). Assessment criteria are more detailed than learning outcomes and indicate the quality of the performance which are expected of learners to show they have reached a particular standard reflective of the learning outcome (Moon, 2002:17). Sadler (2005:188) emphasises the difference between standards and criteria although, according to Bloxham and Boyd (2011b:656), these two terms are often used interchangeably. Sadler (2005:188) provides the following definition of a standard:

A definite level of excellence or attainment, or a definite degree of any quality viewed as a prescribed object of endeavour or as the recognised measure of what is adequate for some purpose, so established by authority, custom, or consensus.

Bloxham and Boyd (2011a:59) agree and state that criteria usually pertain to a specific task, while standards refer to a level of achievement. Assessment criteria include the aspects of the assessment on which teachers will base their judgement (Bloxham & Boyd, 2011a:59). Although they are usually based on the learning outcomes, assessment criteria also include generic skills such as presentation and structure (Bloxham & Boyd, 2011a:59).

Assessment criteria have an important role to play in grading of assessments. In fact, the Quality Assurance Agency (QAA) in the UK is of the opinion that many issues regarding assessment can be rectified by providing clear assessment criteria (Yorke, 2011:258). Shay (2004:309) refers to assessment criteria as a “key validating practice” of universities. The use of assessment criteria has become firmly established in higher education, and in some universities the use thereof is mandatory (Sadler, 2009b:159). Institutions could implement a range of generic qualitative criteria which are expected from all modules being taught at that institution, for example, citizenship. These generic criteria could be included in an institution's mission statement. Universities could also have a policy in place which obliges teachers to develop the criteria that set out what will be taken into account when making judgements regarding the performances of students in assessment tasks (Sadler, 2005:184).

The use of preset criteria in assessing students' work has gained ground in higher education. Sadler (2009b:175) summarises the main aspects of the rationale behind this as follows:

- Preset criteria are made available to students before the assessment task, allowing them to approach their response more intelligently;
- Comparing a student's work with the preset criteria instead of against the work of others can be defended more easily;
- In order to be fair the work of all students has to be assessed against the same template;
- Transparency is increased by using clear criteria to arrive at grades. Clear criteria help students to understand the process; and
- Formative feedback can be provided timeously because of the systemised approaches.

Assessment criteria need to be an integral part of the design of a module, as well as the process of learning, so that students can conceptualise the criteria and monitor their learning

(Price *et al.*, 2008:5). Assessment criteria need to be made available to students, teachers and review panels before and during the course to allow for a review of the suitability of the criteria, to make fair judgements of student work and to vouch for the legitimacy of the judgements (Sadler, 2005:190). Assessment criteria should be drawn up and provided to the assessors, as well as the student being assessed (Hussey & Smith, 2002:223) right from the beginning (Knight & Banks, 2003:45). Assessment criteria should not be changed subsequent to an examination, but the lecturer should stick to the original agreement with the student. Any changes, if deemed necessary, should be made later for a subsequent examination sitting (Yorke *et al.*, 2002:22).

Criterion-referenced assessment is assessment that grades student performance against a predetermined set of criteria (Light *et al.*, 2009:207), such as assessment criteria. Criterion-referenced assessment policies are widely accepted in higher education (Sadler, 2005:159). In order to apply criterion-referenced assessment, clear criteria have to be provided so that students know exactly what is expected of them. However, O'Donovan *et al.* (2004:327) found that simply providing the students with clear assessment criteria and grade descriptors was not enough to provide students with meaningful knowledge on assessment criteria and standards. The problem was with the “clear and precise articulation” and the “accurate receipt” thereof. Certain verbs might be used at both undergraduate and postgraduate level, but it will contain a different level of evaluation at different levels. Knight (2000:243) also reports that conceptualisation might be a problem with regard to providing clear criteria. Students and even staff might have different views on what, for example, “critical thinking” means. Furthermore, the meaning of some words, such as “synthesis” or “analysis”, is interpreted differently by staff and students and even among staff members themselves (O'Donovan, 2004:327).

Providing detailed criteria might lead to “complex, hard-to-manage documents”. Knight also states that criteria are often contested and constructed through social processes and that criteria cannot always be stated in unambiguous terms. Criteria-based assessment has a preference for validity over reliability which, according to Knight (2000:244), might pose a problem in summative examinations. Knight and Banks (2003:43), however, warn that clear assessment criteria do not automatically make assessments reliable and can also lead to limited validity. The reason that they often lack reliability is because they are too complex. Furthermore, it usually increases the cost of the assessment. There might also be some disagreement on what the criteria should be in a school (Knight & Banks, 2003:43). Moreover, research shows that staff often ignore assessment criteria (Bloxham, 2009:211).

Yorke *et al.* (2000:20) found that the more detailed the assessment criteria, the easier it is to award marks for different parts of the assessment. However, in cases where professional judgement is involved, for example, where creativity is required, assessment criteria should probably be written in more general terms in order to allow some flexibility (Yorke *et al.*, 2002:22). Students can answer an essay-type question differently, but with an equal level of quality. This requires judgment of the lecturer grading the essay (Bloxham & Boyd, 2011b:657). Because of the level of interpretation that is required, inconsistency in marking can occur (Bloxham, 2009).

Sadler (2005, 2009a, 2009b) published a number of articles in which it was proven that simply stating assessment criteria in clear terms does not solve the problems associated with assessment. Yorke (2011:259) summarised the problems highlighted by Sadler and others as follows:

- The meaning of terms that are used can differ;
- The understanding of terms, even within one subject area, can differ;
- The achievement of different criteria when combined can lead to different marks; and
- There are inconsistencies in dealing with course-related student activities that do not form part of the formal meaning of achievement.

4.3 FRAMEWORKS FOR THE DEVELOPMENT OF LEARNING OUTCOMES

The following frameworks have been suggested to have an influence on the development of learning outcomes:

4.3.1 SAQA

All learners at all South African tertiary institutions have to meet the requirements of the HEQF and SAQA as set out in SAQA's level descriptors (Kroeze *et al.*, 2012). In the South African higher education system, level descriptors are set at NQF level. In 2012 SAQA published the document containing the ten levels of achievement to be used in the development and evaluation of qualifications for registration on the NQF (refer to appendix A, page 352). In this document SAQA states that the philosophical foundation of the NQF and the level descriptors are applied competence. This is in line with the concept of OBE. Exit-level outcomes are presented for each of the ten levels with the purpose of establishing consistency in learning achievements and to ensure that qualifications are comparable (SAQA, 2012:4).

According to SAQA (2012), a level descriptor describes a certain level of knowledge and learning achievement of a learner required for a certain qualification. It, therefore, assists in formulating the learning outcomes and criteria for assessment (SAQA, 2012:5). The following ten categories describe the generic competencies within each of the ten levels of the NQF (SAQA, 2012):

- Scope of knowledge;
- Knowledge literacy;
- Method and procedure;
- Problem solving;
- Ethics and professional practice;
- Assessing, processing and managing information;
- Producing and communicating information;
- Context and systems;
- Management of learning; and
- Accountability.

It should be noted that the level descriptors describe the competencies that a learner should have at a certain level of a qualification and do not indicate years of study (SAQA, 2012:5). All graduates from South African universities are expected to meet the competencies as they are stated in the level descriptor document of SAQA (Kroeze *et al.*, 2012).

4.3.2 SAICA

In its competency framework, SAICA states that the competencies of a CA(SA) at the point of entry into the profession encapsulate a broad range of knowledge, skills and attributes, including pervasive qualities and skills, which are fully integrated with specific competencies (SAICA, 2014:9). The pervasive skills are categorised as ethics and professionalism, personal attributes, and professional skills. Professional skills include obtaining information, critical thinking, problem solving, effective communication, management and supervisory skills, understanding the impact of IT on a CA's daily functions and routines, and understanding the national and international environment (SAICA, 2014:34).

SAICA's competency framework sets out the competencies expected of a prospective CA upon entry into the profession and, therefore, defines the levels of proficiency expected of a candidate at the time of writing the SAICA ITC examination (SAICA, 2014:18). SAICA identifies three levels of proficiency. These levels become progressively more challenging, with level A requiring the lowest proficiency and level X requiring the highest. The levels

indicate the level of knowledge required of students, the extent to which they must be able to apply and integrate their acquired knowledge, and the complexity of the problems they are expected to solve (SAICA, 2014:18).

The SAICA levels of proficiency are illustrated in the following table:

Table 4.1: The SAICA levels of proficiency

Level A – Awareness	Level I – Initiates the task	Level X – Completes the task
• Key ideas and principles • Technical expertise or detailed knowledge not required • Identifies and explains significance and relevance	• Performs task on preliminary basis • Understands requirements of the task • Identifies and applies the required professional skills • Intermediate understanding • Basic quantitative and qualitative analysis (excluding complex calculations) • Integration straightforward	• Completes all elements of task • Problem is clearly identified and thoroughly analysed, or situation is evaluated and useful recommendations are made • Relevant pervasive skills and reflective capacity demonstrated at advanced level • Advanced understanding • Technical skills include complex calculations and conclusions on an appropriate course of action

Source: SAICA (2014:19)

It should be noted that these levels of proficiency form a hierarchy; thus, competency at a higher level such as level X assumes that levels A and I have already been mastered (SAICA, 2014:18).

SAICA (2014:18) stresses that a high degree of contextualisation is required for all three levels. This means that all these competencies should be taught and assessed using “real world” scenarios. SAICA (2014:18) provides the examples of case studies and contextualised questions as a means to achieve this. SAICA (2014:18) also refers to a scenario that is contextualised as being “sufficiently problem rich so as to require the prospective CA to exercise judgement in choosing between alternative approaches to the problem in determining an appropriate solution”.

4.3.3 Taxonomies of learning

Teachers are required to assess their students' learning and, in order to do so, they need a classification of levels of intellectual behaviour. Taxonomies of learning, such as the well-known Bloom's Taxonomy of Educational Objectives, provide such a tool to measure students' thinking and learning (Forehand, 2005). Herbert *et al.* (2009:23) propose the use of taxonomies of learning such as Bloom's Taxonomy to inform the process of curriculum design.

The next section focuses on the development of some well-known taxonomies which have helped define the stages of learning that will ultimately require assessment. The section focuses on the taxonomies that lend themselves towards use in developing and analysing learning outcomes and assessments. Williams (2013:16) identified Bloom's Taxonomy of Educational Objectives and the revised Bloom's Taxonomy as the two major frameworks for the development of learning outcomes.

4.3.3.1 ***Bloom's Taxonomy of Educational Objectives***

After discussions at the Convention of the American Psychological Association in 1948, Benjamin S. Bloom led a group of educators tasked with classifying educational goals and objectives. They came up with a taxonomy with three domains: the cognitive domain which is knowledge based, the affective domain which is attitude based, and the psychomotor domain which is skills based (Forehand, 2005).

According to Krathwohl (2002:212), Bloom viewed his original taxonomy as follows:

- It provides a common language for all subjects and grade levels and among all people;
- It can serve as a basis for determining for a particular module or curriculum the specific meaning of broad educational goals;
- It is a means of determining the correspondence of educational objectives, activities and assessments in a unit, module or curriculum; and
- It provides an outlook of the scope of educational possibilities to which any particular module or curriculum could be compared.

In 1956 Bloom published his book *Taxonomy of Educational Objectives: The classification of educational goals* which focused mainly on the cognitive domain. The learning outcomes in the cognitive domain are knowledge, comprehension, application, analysis, synthesis and evaluation. These outcomes can be grouped into two categories, namely "lower-order" and

“higher-order” outcomes. The lower-order outcomes are knowledge and comprehension and do not require students to apply or use the knowledge they have obtained. The higher-order outcomes are application, analysis, synthesis and evaluation and require students to use, adapt or apply their knowledge by combining knowledge and skills (Bloom *et al.*, 1956). Assessment of the outcomes in the two groups of outcomes also differ in that the lower-order outcomes usually require a single correct answer from the students, whereas the higher-order outcomes do not have a single correct answer (Bloom *et al.*, 1956; Gainen & Locatelli, 1995:46).

It is important to note that the six levels of the cognitive domain form a cumulative hierarchy; therefore, when students master a certain level, it is assumed that they have also mastered the lower levels (Bloom *et al.*, 1956:17; Forehand, 2005; Krathwohl, 2002:212) and that each level of behaviour includes all the behaviours of the less complex levels (Kreitzer & Madaus, 1994:66). This is illustrated in Figure 4.2:

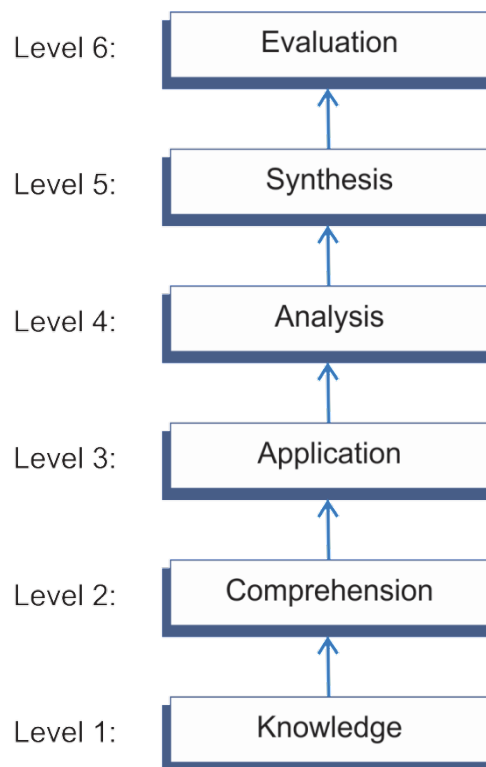


Figure 4.2: Bloom's Taxonomy

Source: Adapted from Bloom *et al.* (1956) and Nentl and Zietlow (2008:161)

Bloom developed detailed definitions for each of the above six categories in the cognitive domain:

Knowledge

Knowledge requires the student to define, memorise and remember ideas, material, facts or concepts they have previously learned and to recall these as they have been learned (Bloom *et al.*, 1956:62; Jones *et al.*, 2009:2; Nentl & Zietlow, 2008:161). Limited relating or judging is involved, only to the extent in which the student has to be able to answer questions that are formulated differently than in the original learning situation (Bloom *et al.*, 1956:62). Students can recall information without attributing any meaning to the information (Dunham *et al.*, 2015:8) or understanding the importance of the information (Jones *et al.*, 2009:2).

Although knowledge is also required in the other categories of the taxonomy, remembering is the major psychological process involved here. In the other categories, knowledge is only one part of the more complex processes. Knowledge includes knowledge of specifics, knowledge of ways and means of dealing with specifics, and knowledge of the universals and abstractions in a field. In its turn, knowledge of specifics include the terminology and facts within a subject area, while ways and means of dealing with specifics include conventions, trends and sequences, classification and categories, criteria and methodology. The last category of knowledge, universals and abstractions contains the principles and generalisations, as well as the theories and structures (Bloom *et al.*, 1956:62).

Knowledge is demonstrated by the ability to define and recall terms, dates, events and places or describe subject matter (Nentl & Zietlow, 2008:161). It should be noted that any question a student has seen before is classified as knowledge, because the student has had the chance to memorise the solution (Dunham *et al.*, 2015:8). According to Davidson and Baldwin (2005:82), providing a definition of depreciation would be an example of this level of learning in accounting. Lakshmi (2013:240) uses the example of explaining the role of the financial manager for the knowledge level.

Comprehension

Comprehension requires the student, when presented with a piece of communication, to know what is being communicated and to use the ideas or information contained in the communication. The student has to understand the message contained in the communication (Bloom *et al.*, 1956:89). Comprehension is, therefore, the ability to understand conceptual meaning (Nentl & Zietlow, 2008:162). Bloom *et al.* (1956:89) propose three types of comprehension behaviour, namely translation, interpretation and extrapolation. Translation is when the student translates the communication into another language or into other terms. For example, in the subject area MAF, this could involve translating a ratio in financial statement analysis into words. Interpretation requires reconfiguring the ideas within the

communication into a new order (Bloom *et al.*, 1956:89). The learner has to be able to interpret graphs, tables, charts and cartoons (Jones *et al.*, 2009:2; Nentl & Zietlow, 2008:161). Extrapolation involves making predictions or estimates based on the trends, tendencies or conditions contained in the communication. Thus, comprehension refers to relating and organising information that has already been acquired (Duron *et al.*, 2006:160).

At this stage the student understands the importance of the information that has been learned. The student is able to provide the material in a different way than in which the material was first presented (Jones *et al.*, 2009:2).

Comprehension can be demonstrated by correctly explaining the history of an event, a report on the status of an organisation or different phenomena (Nentl & Zietlow, 2008:161). The example of explaining the necessity of depreciation is used to illustrate the comprehension level in accounting by Davidson and Baldwin (2005:82).

Application

Application differs from comprehension in that, when students are presented with a problem, they will know what concept is applicable and will use it without being told which concept to use or how to use it. In the comprehension category students will be able to solve the problem, but will be instructed on the abstraction that they should use or how to use it (Bloom *et al.*, 1956:120).

Application, therefore, requires students to identify and use relevant information, rules or principles that they have previously learned in specific situations to solve a problem or to demonstrate the accurate use of a concept or theory in a different context (McConnel *et al.*, 2003:207; Nentl & Zietlow, 2008:161). According to Dunham *et al.* (2015:11), some tasks at this level might seem small or insignificant, but it should be kept in mind that the depth of achieving the outcomes are measured and not the level of difficulty. They further opine that, where a learner is expected to choose between possible methods of solving a problem, a part of the problem lies within the analysis level.

Application can be demonstrated by applying the theories or methods that have been learned in given situations or to identify which technique would be most appropriate to solve a problem and then use that technique to solve the problem (Nentl & Zietlow, 2008:161). It seems that the opinion of Nentl and Zietlow (2008:161), namely that identifying the appropriate technique is at application level, contradicts with that of Dunham *et al.* (2015:11) who indicated that choosing between possible methods lies at analysis level. For the

purposes of this study, it is concluded that choosing an appropriate method in a simple situation could be regarded as application.

Problem solving can include performing calculations or making decisions (Davidson & Baldwin, 2005:82). Previous knowledge is, therefore, crucial at this cognitive level (Swart, 2010:259). Davidson and Baldwin (2005:82) use the calculation of depreciation as an example of application in accounting. Lakshmi (2013:240) posited the example of applying different appraisal methods in Financial Management as an illustration of application. This would, however, depend on the amount and complexity of the information provided in the question, as Davidson and Baldwin (2005) state that questions containing large amounts of information should be included at the higher cognitive levels.

Analysis

Analysis requires the student to “break down the material into its constituent parts and to detect the relationship between the parts and the way in which they are organised”. Analysis is divided into three levels, namely analysis of elements, analysis of relationships and analysis of organisational principles (Bloom *et al.*, 1956:145).

Analysis requires students to deconstruct a complex problem into its different components and to show an understanding of how the different components fit together (Jones *et al.*, 2009:2; Nentl & Zietlow, 2008:161; Towns, 2010:93). Some sort of inference is required at this level (Dunham *et al.*, 2015:12). According to Duron *et al.* (2006:160), this requires critical thinking in order to understand the functionality of parts in the whole.

Analysis can be demonstrated by explaining why a particular solution process works to resolve a problem. A student is able to see patterns underlying content or deconstruct the critical components of a framework (Nentl & Zietlow, 2008:161). In the accounting education context analysis involves using calculations, analysis, classifications, journal entries and calculations where more than one method is involved in specific situations (Davidson & Baldwin, 2005:82). Davidson and Baldwin (2005:82) warn that outcomes at levels 4 to 6 are more difficult to classify based on the verbs and that the situation has to be taken into account. Dunham *et al.* (2015:12) pose that questions on the analysis level often require application level skills as well.

Davidson and Baldwin (2005:82) use the preparation of a depreciation journal entry as an example of analysis, while Lakshmi (2013:240) provides the example of a student being expected to analyse the insights from finance through case studies.

Synthesis

Synthesis is defined as “the putting together of elements and parts so as to form a whole” (Bloom *et al.*, 1956:162). The student is required to use different elements and create a pattern or structure that did not clearly exist before. It involves combining new material with previous experience to create a new unit. The emphasis is on uniqueness or originality and it differs from comprehension and analysis in that it requires the student to use several sources and to put them together to create something that did not exist before (Bloom *et al.*, 1956:162).

Synthesis is, therefore, the ability to combine parts by applying prior knowledge to form a new or greater whole (McConnell, 2003:207; Nentl & Zietlow, 2008:161; Towns, 2010:93). This requires critical thinking (Duron *et al.*, 2006:160).

Synthesis can be demonstrated by the ability to reorganise, reconstruct or put together parts of a process to develop and use a new structure (Nentl & Zietlow, 2008:163). According to Davidson and Baldwin (2005:82), for the context of accounting education, this involves more complex problems with large amounts of information where more than one technique, adjustment, projection or recalculation might be required. They use changing the method of recording depreciation as an example of synthesis in accounting.

Evaluation

Evaluation is “the making of judgements about the value, for some purpose, of ideas, solutions, methods, material, etc.” Evaluation includes both qualitative and quantitative judgements and involves using criteria for presenting an opinion on certain matters (Bloom *et al.*, 1956:185).

Evaluation, thus, involves the ability to judge the value of material, a purpose, a solution to a problem, a procedure, method or product for a given purpose based on certain criteria, or standards and reasoned argument (Duron *et al.*, 2006:161; Jones *et al.*, 2009:2; Nentl & Zietlow, 2008:161; Towns, 2010:93). The student may also be required to organise or bring together information from various sources without being guided on the value that should be placed on each source (Dunham *et al.*, 2015:13). Critical thinking is involved in the making of judgements (Duron *et al.*, 2006:160).

Evaluation can be demonstrated by the ability to come up with various methods to solve a specific problem and then choose the method that is most suitable to solve the problem (Nentl & Zietlow, 2008:161). This usually involves using discussions, arguments or reasoning

to perform an analysis or make decisions (Davidson & Baldwin, 2005:82). As an example of evaluation in the discipline of accounting, Davidson and Baldwin (2005:82) mention the comparison of different methods of calculating depreciation and making a case for the most appropriate method in a specific situation.

Bloom's Taxonomy is used during the entire educational process, from setting the objectives to deciding on the teaching activities and assessments to reach these objectives. One of the most important uses of Bloom's Taxonomy is for the analysis of module objectives and assessments in order to determine the breadth, or lack thereof, across the six categories (Amer, 2006:215; Krathwohl, 2002:213). It is interesting to note that, in most such studies, the objectives tested were concentrated in the knowledge level of the taxonomy and, therefore, required only recall of knowledge (e.g., Krathwohl, 2002:213; Lakshmi, 2013). Yet, the objectives that fall in the higher levels, which require an understanding of the knowledge, are usually the main objectives of higher education (Krathwohl, 2002:213).

Crowe *et al.* (2008) developed a tool to provide students with a list of activities that will best prepare them for questions on every level of cognitive skills and help them answer these questions. By using this tool, these authors hoped to create questions at the appropriate cognitive levels in order to test the students' mastery of content and skills. In doing so, they also hoped to better align their assessments with the learning objectives. They did, however, emphasise the fact that any tool developed for a particular subject area should be seen as a continuous process of feedback and improvement.

Bloom's Taxonomy has been applied to a wide variety of subject areas (Forehand, 2005). Although Bloom's Taxonomy can be widely applied, each subject discipline has to contextualise the classifications for its specific field (Crowe *et al.*, 2008:369). Crowe *et al.* (2008) adapted the original taxonomy to develop a Blooming Biology Tool which is used to test biology questions to the level of Bloom's Taxonomy. The model was developed through discussions and consulting existing research on the interpretation of Bloom's Taxonomy in the subject field of biology (Crowe *et al.*, 2008:370).

More than 50 years since its publication Bloom's Taxonomy is still being used widely, also by educators in curriculum development, assessment and teacher education (Imri, 1995; Marzano & Kendall, 2007:2). It has been translated into 22 languages (Forehand, 2005; Krathwohl, 2002:213) and, although it has been revised several times, the original taxonomy is still consulted by academics. Bloom's Taxonomy is widely used because of its simplicity

and versatility, and can be applied over all levels of education and over all disciplines within education (Nentl & Zietlow, 2008:160).

There have, however, been several criticisms against the taxonomy (Marzano & Kendall, 2007:1). One of the criticisms is that it is based on differences in difficulty between the levels (Marzano & Kendall, 2007:9). Other criticisms include the fact that the hierarchy oversimplifies the relationship between thought and learning and questions regarding the hierarchical order of the taxonomy (Furst, 1994). The categories of the hierarchy were presumed not to overlap (Amer, 2006:216). Ormell (1974) reported that certain demands in the knowledge level were more challenging than demands in the analysis or evaluation level and also claimed that evaluation is not more difficult than synthesis, as “synthesis involves evaluation” (Kreitzer & Madaus, 1994:65). Nentl and Zietlow (2008:161) add to the debate by stating that the process of analysing and evaluating information and creating new knowledge is an ongoing and interrelated process and not strictly hierarchical. Marzano and Kendall (2007:9) summarise the criticism by mentioning that the structure “simply did not hold together well from logical or empirical perspectives”. In the 1980s the focus shifted towards the teaching of higher-level thinking and reasoning. This, together with the research on the validity of Bloom’s Taxonomy, caused an awareness of the need to revise it (Marzano & Kendall, 2007:3).

4.3.3.2 *A taxonomy for learning, teaching and assessing: A revision of Bloom’s Taxonomy of Educational Objectives*

In 2001 a revised version of Bloom’s Taxonomy was published by Anderson *et al.* (2001) (hereafter referred to as the revised Bloom’s Taxonomy). As Marzano and Kendall (2007:9) note, the revised taxonomy links closely with the original taxonomy. According to Anderson *et al.* (2001:XXI), the purpose of the revision was to achieve a renewed focus on the taxonomy and to incorporate new knowledge and thought into the taxonomy.

Unlike the original Bloom’s Taxonomy, the revised Bloom’s Taxonomy is presented as a two-dimensional framework with a knowledge dimension and a cognitive dimension (Anderson *et al.*, 2001:4). An objective or learning outcome usually contains a verb and a noun (Anderson *et al.*, 2001:4). The noun refers to the knowledge that should be acquired by the student (the subject matter) and the verb is the action that is required (what should be done with or to the subject matter) and, therefore, refers to the cognitive process (Anderson *et al.*, 2001:4; Krathwohl, 2002:213). Anderson *et al.* (2001:28) present their two-dimensional taxonomy in the format of a table:

Table 4.2: A taxonomy for learning, teaching and assessing

The knowledge dimension	The cognitive process dimension					
	1. Remember	2. Understand	3. Apply	4. Analyse	5. Evaluate	6. Create
A. Factual knowledge						
B. Conceptual knowledge						
C. Procedural knowledge						
D. Meta-cognitive knowledge						

Source: Anderson *et al.* (2001:28)

Another important change to the original taxonomy is that a fourth and new category, metacognitive knowledge, was added to the knowledge dimension. The knowledge dimension, presented in the first column of Table 4.2, now consists of four types of knowledge: factual, conceptual, procedural and metacognitive. These types of knowledge are sorted from concrete (factual) to abstract (metacognitive) (Anderson *et al.*, 2001:27). **Factual knowledge** is knowledge of “discrete, isolated content elements – bits of information” (Anderson *et al.*, 2001:27). It includes knowledge of terminology and specific details such as terminology. It is the basic knowledge that students should have regarding a discipline in order to solve problems within the discipline (Anderson *et al.*, 2001:27). **Conceptual knowledge**, however, is “more complex, organised knowledge forms” and includes knowledge of classifications and categories, principles and generalisations, as well as knowledge of theories and models (Anderson *et al.*, 2001:27). Examples of these are the different forms of business ownership, law of supply and demand, agency theory, etc. **Procedural knowledge** pertains to knowledge of how things are done, including knowledge of subject-specific skills, subject-specific techniques and methods, as well as knowledge of the criteria that have to be applied to determine which techniques or methods should be used in what circumstances (Anderson *et al.*, 2001:27). An example could be the knowledge of the different valuation techniques in Financial Management, but also knowledge of the criteria in order to determine which of these techniques should be used in certain circumstances.

The additional category, namely **metacognitive knowledge**, involves knowledge of cognitive processes, as well as knowing one’s own cognitive abilities (Anderson *et al.*, 2001:27; Pintrich, 2002:219). Metacognitive knowledge includes strategic knowledge, knowledge

about cognitive tasks and self-knowledge. Self-knowledge is when one is aware of one's strengths and weaknesses such as knowing that writing an essay is a personal weakness, but critiquing an essay is a personal strength (Anderson *et al.*, 2001:27).

The cognitive dimension still has the six categories of the original taxonomy. However, the terminology was changed from nouns to verbs and the top two levels were exchanged. The term “knowledge” in the lowest level was also renamed and became “remembering” (Forehand, 2005; Krathwohl, 2002:214), while “comprehension” was renamed “understanding” (Krathwohl, 2002:214). “Synthesis”, which changed places with “evaluation”, was renamed “creating” (Krathwohl, 2002:214). The two versions are illustrated in Figure 4.3 below.

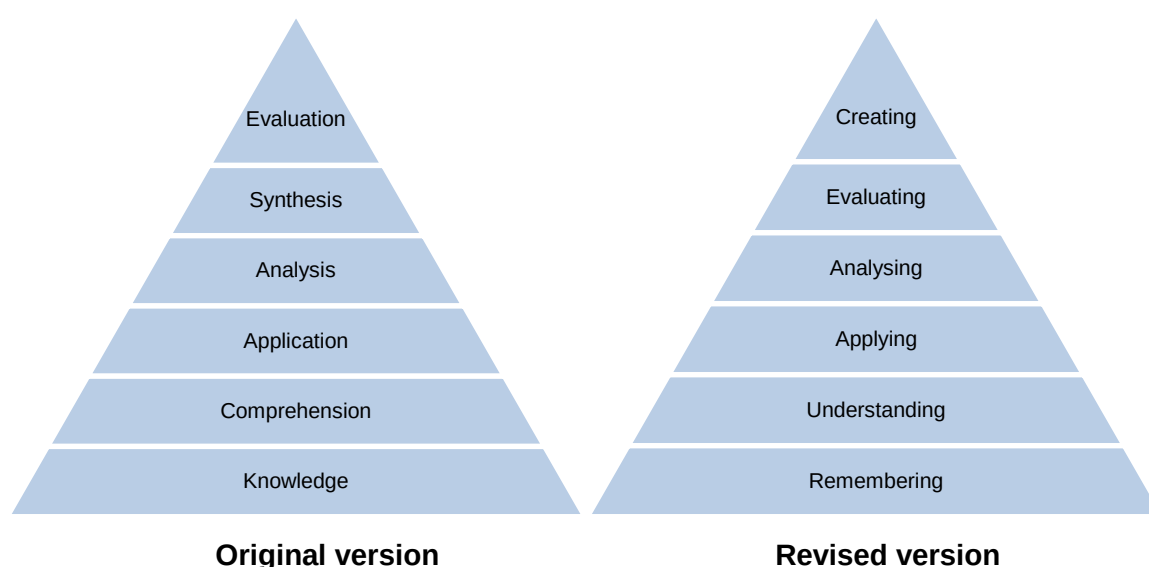


Figure 4.3: Revised Bloom's Taxonomy

Source: Forehand (2005)

As with the original version of Bloom's Taxonomy (refer to paragraph 4.3.3.1), the six cognitive levels are still seen as a hierarchy, and it is assumed that one follows on the other in terms of cognitive complexity. “Understanding” is seen to be more difficult than “remembering”, “applying”, in turn, is more difficult than “understanding”, and “analysing” more difficult than “applying”, etc. (Anderson *et al.*, 2001:5). However, the strict hierarchy is more lenient and the categories are allowed to overlap (Krathwohl, 2002:215).

In the original taxonomy, the six categories in the cognitive domain received the main focus rather than the information in the subcategories. In the revised version, however, the 19 subcategories receive the major emphasis, and the nature of these categories is clear from

their descriptions (Krathwohl, 2002:214). These descriptions are set out in the table in Appendix B (page 364) at the end of this thesis.

Because there are two dimensions, information regarding learning objectives can be presented in a two-dimensional table (Krathwohl, 2002:215). Anderson *et al.* (2001:7) suggest that the positioning of the objective within the table could help the teacher determine the method of teaching that should be used to reinforce the type of knowledge and assist the student in the cognitive process. The noun and the verb in an objective or learning outcome will indicate where an objective will lie within the table. The verb provides an indication of the cognitive process that is required, while the noun indicates the type of knowledge. The verb has to be connected to one of the categories of the cognitive dimension and the noun to one of the types of knowledge (Anderson *et al.*, 2001:4). When a curriculum is plotted in this table, a clear understanding of the curriculum can be gained. Cells that have more than one or even many entries will cause an alert, but cells that are empty could also prompt an investigation as to whether it should be considered (Anderson *et al.*, 2001:5-7). By placing the objectives of a module in the table the educator can get an indication of whether more complex cognitive processes are involved (Krathwohl, 2002:216). Therefore, the use of the revised taxonomy should lead to improved curriculums and improved teaching (Krathwohl, 2002:218).

The positioning within the table also applies to assessment and, according to Anderson *et al.* (2001:8), different cells in the table require different approaches to assessment. The original taxonomy provided a tool for effective lesson plans, but the revised taxonomy, with its two-dimensional structure and 19 subcategories, provides more clarity regarding the fit of a verb to a given level (Forehand, 2005). For this reason, the revised taxonomy is the ideal tool for setting learning outcomes and evaluating assessments. As indicated previously, it is important that the objectives, teaching methods and assessments are aligned (Biggs, 1996) and Anderson *et al.* (2001:95) state that this taxonomy will help educators with aligning the objectives, teaching methods and assessments.

4.3.3.3 *The new taxonomy of educational objectives*

Marzano and Kendall (2007:9) admit that the revised Bloom's Taxonomy (paragraph 4.3.3.2, page 88) added a great deal to the original work of Bloom, but stated that it still suffered from some of the pitfalls of the original taxonomy and versions thereof. This led to the New Taxonomy of Educational Objectives of which the completed version was published in 2007 (Marzano & Kendall, 2007:xi). Marzano and Kendall (2007:10) claim that their taxonomy

does not have the problems identified in Bloom's Taxonomy and that it is easier to use in practice.

The New Taxonomy of Educational Objectives is presented in Figure 4.4 below:

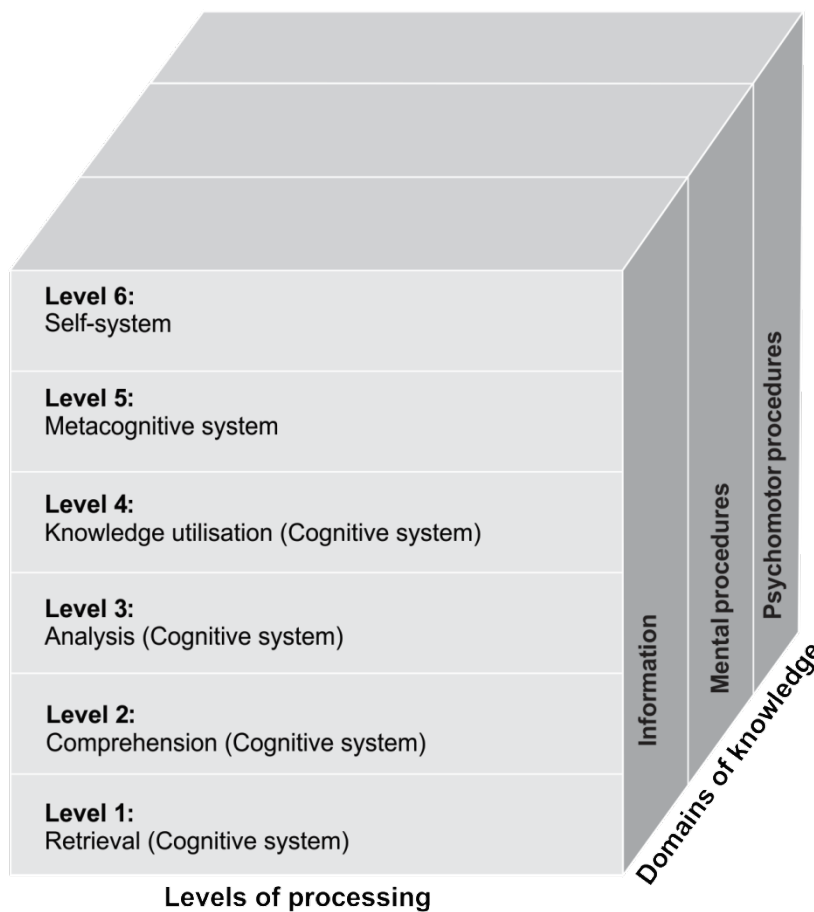


Figure 4.4: The New Taxonomy of Educational Objectives

Source: Marzano and Kendall (2007:13)

The model is presented as a two-dimensional model with six categories of thought in the one dimension and three types of knowledge in the other dimension. The six categories of thought on the left-hand side of

Figure 4.4 fall within three mental systems, namely the cognitive system, the metacognitive system and the self-system (Marzano & Kendall, 2007:13). When students are presented with a new task, their subsequent behaviour will be determined by the three mental systems and the level of knowledge they have about the task. The **self-system**, which contains students' interrelated beliefs and goals (Csikszentmihalyi, 1990; Harter, 1980; Markus & Ruvulo, 1990), is used to judge whether they should engage with this new task, and it provides the motivation for the task (Marzano & Kendall, 2007:12). If students do decide to engage with the new task, the **metacognitive system** is engaged. The metacognitive system sets the goals for the task and develops the strategies that will be needed in order to

complete the task successfully. The **cognitive system** processes the information to complete the task. This involves reasoning, making conclusions, classifying, etc. However, these systems are dependent on the knowledge that students already have regarding the task. The mental systems act upon the knowledge domains (Marzano & Kendall, 2007:12).

There are two categories in the **information** domain of knowledge: details and organising ideas. Details consist of vocabulary, facts and time sequences, whereas organising ideas include principles and generalisations (Marzano & Kendall, 2007:26). The domain of **mental procedures** is also categorised into two sections, namely those procedures that can be performed automatically once there has been enough practice, such as tactics, algorithms and rules, and those procedures that need control, referred to as macroprocedures (Marzano & Kendall, 2007:30). **Psychomotor procedures** are the physical activities that students use in their day-to-day life for recreation and work.

The basic difference between Bloom's Taxonomy and the New Taxonomy is that the latter separates the types of knowledge from the mental processes. It is the mental processes that are structured hierarchically. The New Taxonomy, however, as with Bloom's Taxonomy, places basic knowledge such as terms and phrases at the lower end of the hierarchy (Marzano & Kendall, 2007:21).

According to Marzano and Kendall (2007:14), their New Taxonomy is a potent tool for designing and classifying educational objectives, designing assessments, rewriting standards to make them more understandable and useful, designing curriculum, and developing a thinking-skills curriculum.

4.4 APPLYING BLOOM'S TAXONOMY FOR THE DEVELOPMENT AND ASSESSMENT OF LEARNING OUTCOMES

Bloom's Taxonomy (refer to paragraph 4.3.3.1, page 81) serves as a basis for developing the learning outcomes of a module (Krathwohl, 2002:212).

Table 4.3 provides a useful summary of the learning outcomes in the cognitive domain as presented by Bloom *et al.* (1956), with learning outcomes specific to the subject area of accountancy.

Table 4.3: Bloom's Taxonomy of knowledge applied to accountancy

Levels of knowledge	Learning results
To have knowledge	Know/be aware of basic accountancy concepts, terms, processes, methods, etc.
Comprehension	Understand the basic accountancy concepts, terms, processes, methods, etc.
Application	Form abstractions from and apply accountancy concepts, terms, processes, methods, etc., in new situations.
Analysis	Analyse accountancy information in its constituent parts.
Synthesis	Combine accountancy information to form patterns, structures, ideas, etc.
Evaluation	Evaluate and interpret accountancy information.

Source: Adapted from Bloom *et al.* (1956)

It has been stated that one of the most important uses of Bloom's Taxonomy is to analyse learning outcomes in order to determine whether learning outcomes are appropriately spread across the six cognitive levels. Some of these studies that have applied Bloom's Taxonomy or the revised Bloom's Taxonomy in developing and assessing the cognitive levels of learning outcomes for different disciplines are presented in Table 4.4.

Table 4.4: Applying Bloom's Taxonomy in the development and assessment of the cognitive levels of learning outcomes

Authors	Subject area	Method	Scope	Summary of findings
Starr et al. (2008)	Biology	Qualitative		Showed that using Bloom's Taxonomy for specifying learning outcomes prior to assessment facilitated programmatic assessment, benefited instructors in selecting tools for assessment and enhanced communication between faculties engaged in curricular development.
Crowe et al. (2008)	Biology	Qualitative		Developed a tool to develop and identify biology questions representing the different level of Bloom's Taxonomy. The authors suggest this could be used to design questions to help students to develop critical thinking skills.
Nayef et al. (2013)	n/a	Literature review		From a review of the literature, it was concluded that Bloom's Taxonomy was superior to other taxonomies of learning for assessing the level of learning outcomes.
Fitzpatrick and Byrne (2007)	Engineering	Quantitative		Most undergraduate students were not clear on the concept of "a learning outcome" and the learning outcomes of their degree programme. Students did not perceive lecturers to explain the learning outcomes for their modules to them.
Studies using the original Bloom's Taxonomy				
Momsen et al. (2010)	Biology	Mixed method Content analysis	77 courses over two-year period	Analysed the course goals of introductory Biology courses according to the cognitive levels of Bloom's Taxonomy. It was found that learning outcomes were written to address the higher-order cognitive skills, but that assessment tended to focus on the lower-order skills.
Yap et al. (2014)	Accounting	Mixed method Content analysis Student survey	12 courses 197 learning outcomes	Results indicated that 80% of learning outcomes were in the three lower cognitive levels (knowledge, comprehension and application).
Ahmed et al. (2014)	Engineering	Mixed method Content analysis	48 courses 229 verbs	It was found that the cognitive domains were not balanced within the degree programme.

Authors	Subject area	Method	Scope	Summary of findings
Studies using the revised Bloom's Taxonomy				
Williams (2013)	Information technology	Mixed method Content analysis	One degree programme 20 modules	Bloom's Taxonomy was used to determine the level of academic rigour involved in individual subjects, as well as the overall course of study. It was found that the standard of learning outcomes was inconsistent with some of the outcomes being clear while others provided little information of what was expected. The authors concluded that there was a shift towards higher cognitive levels with progression through the year levels of study. The revised Bloom's Taxonomy was found to be feasible in analysing the learning outcomes for a course.
Lakshmi (2013)	Finance	Mixed method Content analysis	10 universities 16 modules 156 learning outcomes	The learning outcomes of finance modules were categorised according to the revised taxonomy's cognitive levels. The lower-level skills along with the application of knowledge dominated the learning outcomes analysed. The results across the different universities did, however, differ.
Studies using the SOLO taxonomy				
Brabrand and Dahl (2008)	Computer science Natural science Mathematics	Mixed method Content analysis	2 universities 550 courses	It was found that three departments differed in the use of the SOLO levels and also in the use of verbs and the distribution over the cognitive levels. A list of the ten verbs (competences) most frequently used per department was provided. ¹

Source: Researcher

4.5 HIGHER-ORDER AND LOWER-ORDER COGNITIVE SKILLS

The first two categories of Bloom's Taxonomy, knowledge and comprehension, are regarded as lower-order cognitive skills, while application, analysis, synthesis and evaluation are regarded as higher-order cognitive skills (Bloom *et al.*, 1956). Swart (2010) also classified knowledge and comprehension as lower order, and application, analysis, synthesis and evaluation as higher order. Crowe *et al.* (2008:370) added a third category by stating that application could be seen as a link between the lower-order and higher-order skills.

Lakshmi (2013:240) contends that the three lower levels of Bloom's Taxonomy require memorisation, attention and replication, while the three higher-level outcomes require activities and processing actions on a higher level. The thought and action processes required of the student, therefore, increase as they move through the different levels from knowledge to evaluation and synthesis (Lakshmi, 2013:240). Nentl and Zietlow (2008:161) propose that the higher levels of learning in Bloom's Taxonomy (analysis, synthesis and evaluation) are interrelated and ongoing and, therefore, cannot be seen as strictly hierarchical. This is illustrated in Figure 4.5 below:

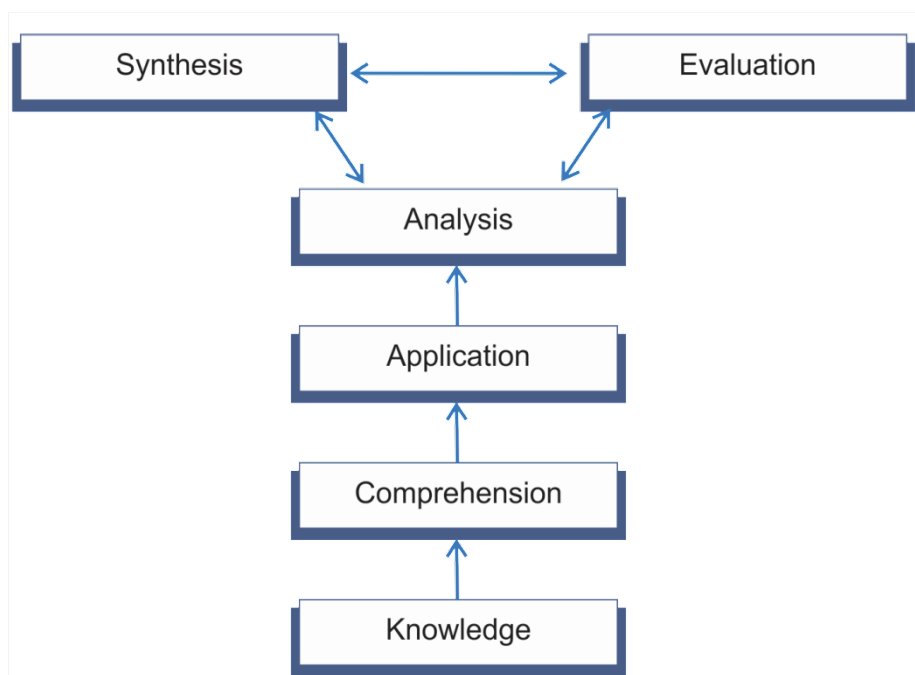


Figure 4.5: Interrelated stages of Bloom's Taxonomy

Source: Nentl and Zietlow (2008:162)

Nentl and Zietlow (2008:164) point out that the lower-order cognitive skills are relatively easy to achieve and implement, yet they are important because they prepare students for moving on to more advanced skills. They warn, however, that failure to move beyond these lower-order skills to more advanced skills and engaging in critical thinking presents a barrier to the learning process. According to Swart (2010:260), it is at the higher-order cognitive levels (application, analysis, synthesis and evaluation) where critical thinking and creative problem-solving skills are developed in students. It, therefore, follows that higher-order questions should begin to dominate later on in a student's academic career and, conversely, lower-order questions should decrease. Swart (2010:260) opines that the lower-order skills (knowledge and comprehension) lay the foundation from which students can develop the knowledge base required to engage in critical thinking and construct meaning (application, analysis, synthesis and evaluation). Lucas *et al.* (2014:565) concur that students need the lower-order skills to be able to perform at the higher cognitive levels.

Swart (2010:263) proposes the following exposure to the different cognitive levels of Bloom's Taxonomy through the year levels, based on his perception of the literature regarding Bloom's Taxonomy:

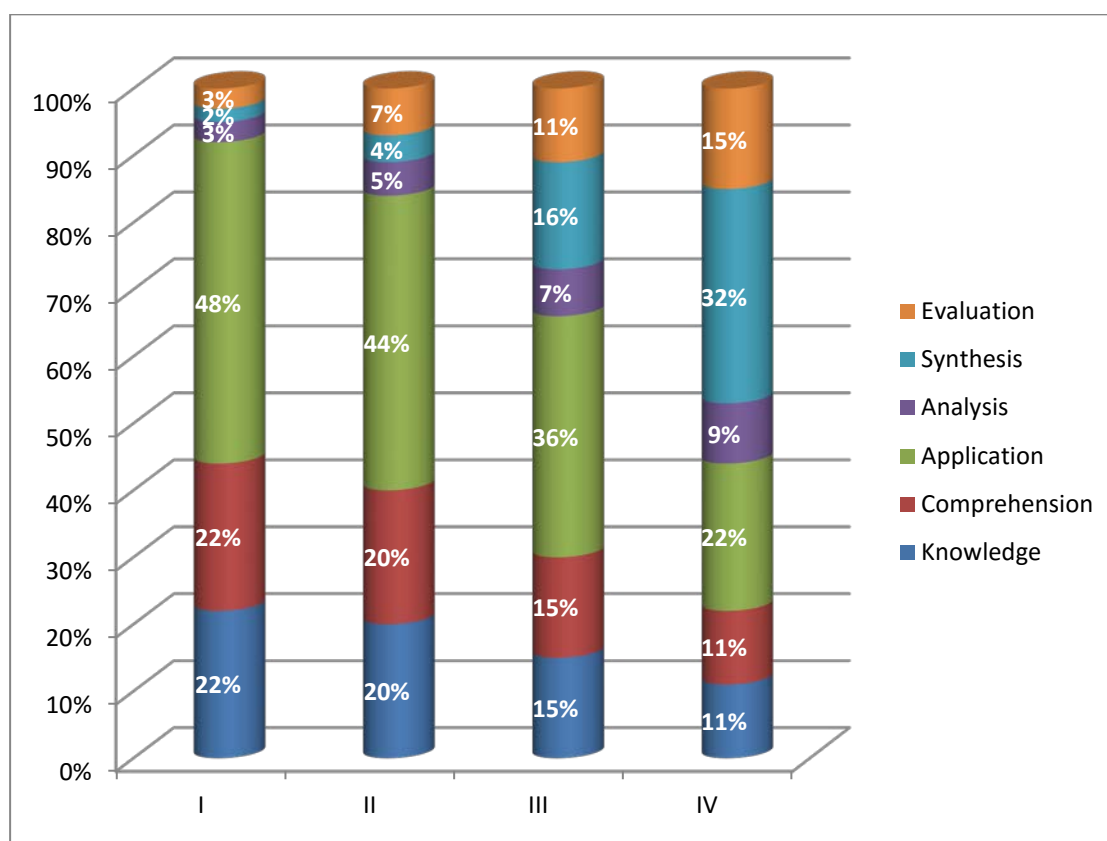


Figure 4.6: Proposed percentages of Bloom's Taxonomy for year levels one to four

Source: Adapted from Swart (2010:263)

4.6 ACTION VERBS

The action verb is the most important element of the learning outcome (Jones *et al.*, 2009:2). The purpose of the action verb is to inform the student of the instructional content and to provide information of what is expected of the student as evidence of learning (Jones *et al.*, 2009:2). Attempting to tie learning outcomes to action verbs represents a change from content-driven assessment to assessment that measures the acquisition of skills (Nevid & McClelland, 2013:20).

In order to achieve learning outcomes, certain verbs are activated. These verbs vary from low cognitive levels such as memorising to high cognitive levels such as reflecting (Biggs & Tang, 2009:26). With the deep approach to learning, students make use of all the verbs, from the lowest cognitive level to the highest. But, with a surface-learning approach, only the verbs in the lower cognitive levels are used. Biggs and Tang (2009:26) suggest that, in order to discourage the surface approach to learning, the use of low-level and unsuitable verbs and activities should be discouraged.

Table 4.5 presents an adaptation by Gainen and Locatelli (1995:48) of Bloom's Taxonomy to outcomes in accounting.

Table 4.5: Bloom's Taxonomy: Cognitive domain

Learning outcome	Verb	Example
Knowledge: Recall or recognise information (terminology, facts, conventions, trends, sequences, classification systems, categories, criteria, methods, principles or generalisations, theories)	Define, list, identify, distinguish, summarise, paraphrase	Student will be able to define terms such as investments, portfolio, equity, debt securities, ROR, ROI, LCM, equity method, market value method with generally accepted accounting principles (GAAP)
Comprehension: Restate concepts or procedures through translation, interpretation or extrapolation	Explain in own words, describe, translate, illustrate, draw, demonstrate, reorder, differentiate, rephrase	Student will be able to explain the portfolio approach outlined by GAAP

Learning outcome	Verb	Example
Application: Use knowledge to achieve a specific purpose; some discretion or inventiveness may be required	Apply, generalise, relate, organise, employ, transfer, restructure, classify	Student will be able to apply fair value method for short-term debt and equity investments to develop a portfolio worksheet
Analysis: Extract essential elements, relationships, or principles of a problem, situation, theory, idea, etc.	Compare, contrast, relate, detect, classify, discriminate, deduce, distinguish, quantify, analyse statistically	Student will be able to analyse risk, liquidity, and ROR on total investment portfolio
Synthesis: Combine and integrate ideas and information from a variety of sources to create an original product (communication, plan, abstract relationship)	Design, predict, produce, construct, write, tell, originate, modify, document, formulate, combine, extrapolate, develop, invent, relate	Student will be able to design a plan to determine consistency between goal for and performance of investment portfolio
Evaluation: Identify the most desirable choice of action in a choice situation in terms of internal evidence or external criteria	Evaluate, test, judge, validate, access, decide, determine, argue, consider, appraise, recommend	Student will be able to prepare a report providing advice on future investment decisions based on information derived from the analysis and plan (above)

Source: Gainen and Locatelli (1995:48) (adapted from Bloom *et al.*, 1956)

A learning outcome should explicitly define the skills that have to be demonstrated in an assessment. Verbs of which the related expected behaviour can be measured should be used (Towns, 2010:93). Towns (2010:93) state that verbs such as “know”, “understand”, “comprehend”, “grasp” or “appreciate” should be avoided as they cannot be measured. Brabrand (2008:9) also warns against the use of “understand” as a verb because of the fact that it cannot be measured.

While the use of action verbs is useful, these verbs can potentially overlap between the different cognitive levels and it can be difficult to assign verbs to the specific levels of learning (Herbert *et al.*, 2009:24). Airasian and Miranda (2002:250) claim that some verbs such as “state”, “list” and “demonstrate” might be ambiguous and could relate to more than one cognitive level. Another verb that could relate to more than one level is the verb “calculate”. Lakshmi (2013:240) lists calculation as knowledge, while CIMA (2010:9), Ragan and Ragan (2004:21) and Yap *et al.* (2014:570) categorise the verb “calculate” as application. Another verb that is categorised differently for accounting education by Lakshmi (2013:240) is the verb “explain”. Most other researchers list “explain” as comprehension. But the context needs to be understood. Lakshmi (2013:240) refers to the basic regurgitation of knowledge, such as explaining the role of the financial manager, etc., and categorises “explain” as knowledge in this context.

In a study on an accounting curriculum, Yap *et al.* (2014) found that when two non-accounting researchers classified learning outcomes according to the cognitive levels of the revised Bloom’s Taxonomy they agreed on all the verbs except “identify”. The verb “identify” covered the dimensions of knowledge, comprehension and analysis.

4.7 THE NEED TO QUESTION THE EFFICACY OF LEARNING OUTCOMES

As discussed above, remembering and understanding are lower-order cognitive skills, and applying, analysing, evaluating and creating are higher-order cognitive skills. Higher education requires that students be tested for higher-order cognitive skills, but often the majority of questions only test lower-order skills (Crowe *et al.*, 2008:379), focusing on recall of facts instead of processing skills (Momsen *et al.*, 2013). Industry requires critical thinking and application of knowledge, but students often struggle to perform at these higher cognitive levels (Crowe *et al.*, 2008:368; Zoller, 1993).

Lakshmi (2013) studied the learning outcomes in Finance programmes of 10 universities in the UK. She plotted the learning outcomes using the revised Bloom’s Taxonomy and found that 26.28% of the cognitive skills in the programmes were at the lowest level (remembering). The majority of the learning outcomes (67%) were in the four lower cognitive levels. Lakshmi (2013:245) concluded that teaching in Finance concentrated on the technical side and that there was a lack of attention to the social, behavioural and environmental aspects of finance.

In another study on accounting education, the learning outcomes in a Master of Accounting programme were categorised into behavioural and cognitive attributes (Yap *et al.*, 2014). It was found that the learning outcomes were predominantly related to course content instead

of concentrating on skills to be acquired. The programme was also dominated by cognitive skills. Yap *et al.* (2014) reported that 95% of the learning outcomes focused on cognitive skills and that 80% of the cognitive skills were in the lower levels of the cognitive dimension: 1% knowledge, 53% comprehension and 26% application.

Nentl and Zietlow (2008:164) acknowledge that some modules' primary learning objectives are to acquire knowledge and comprehension of subject material. These modules provide the foundation for students to move on to more substantive modules. However, some more advanced modules also have more lower-order learning outcomes. Failure to engage students beyond knowledge, understanding and applying "presents a barrier to the learning process" (Nentl & Zietlow, 2008:164).

4.8 SUMMARY

The objective of this chapter was to conduct a literature review of the process of developing learning outcomes considering the role of SAQA and SAICA, as well as other conceptual frameworks such as taxonomies of learning. This was necessary to gain an understanding of the educational frameworks and the role of learning outcomes in the learning process. The knowledge gained from this chapter was used to gain an understanding of the process of curriculum development in a professional accounting programme at universities in South Africa. Furthermore, it was used to compile a table of action verbs expected in the learning outcomes and summative assessment within the MAF subject area. It also assisted the researcher in analysing the learning outcomes and summative assessments of the SAICA-accredited universities in the empirical part of this study.

This chapter explored the alignment of learning to an educational framework. These educational frameworks comprise conceptual frameworks such as the taxonomies of learning and frameworks provided by government (SAQA) and professional bodies (SAICA). There has been a move towards CBE. In a CBE system education is driven by predetermined outcomes where the focus is on the product and not the process. This highlighted the vital role of learning outcomes in the educational process. It was also shown that learning outcomes guide instruction and that effective assessment has to be based on a set of clear and explicit learning outcomes. Accounting graduates need a broad set of skills for entry into the profession and these skills should be reflected in the learning outcomes which are detailed descriptions of what students should be able to do upon completion of the module.

In South Africa SAQA provides level descriptors to assist educators in developing their learning outcomes. These level descriptors describe the competencies expected of learners

at each of the ten levels of the NQF. Another framework used by accounting departments in the development of their learning outcomes is the competency framework of SAICA. SAICA changed from a knowledge-based approach to a competence-based approach in 2008 when they introduced their competency framework, on which SAICA-accredited universities base their curriculums. Institutions of higher education also rely on conceptual frameworks such as Bloom's Taxonomy in the development of learning outcomes. The literature has shown that, although higher education requires that objectives fall in the higher-order levels, most outcomes tested in studies in this area were concentrated in the knowledge level of the taxonomy.

With this chapter, research objective 1.5.2.2 (page 11) has been addressed. In chapter 5 the alignment of assessment with learning outcomes and educational objectives will be discussed.

CHAPTER 5:

ASSESSMENT IN THE EDUCATIONAL PROCESS

5.1 INTRODUCTION

Chapter 5 aims to consider the application of assessment in professional training in higher education, as well as the principles that should be adhered to when setting and delivering assessments (objective 1.5.2.3, page 11). The importance of assessment is well established: “If we wish to discover the truth about an educational system we must look into its assessment procedure” (Rowntree, 1987:1). It is an obvious assumption that the main aim of any educational system is student learning, but the role of assessment in that process is less obvious and is often taken for granted (Boud & Falchikov, 2006:399; Elton & Johnston, 2002:27). In her study Bezuidenhout (2008) suggests that there is a need for examining assessment practices so that lecturers can be clear on what they do, understand how assessment practices relate to one another and what their impact is on their practice and students.

Researchers agree on the importance of assessment (Ramsden, 1992:187) and that it is central to the learning process and student experience (Brown & Knight, 1994:1). Assessment is “the Achilles heel of quality” (Knight, 2002b:107). Yet, in the development and delivery of courses, assessment does not necessarily always feature as one of the most significant parts of the process. Even within the process of constructive alignment, the role of assessment is often downplayed with the emphasis being on clear learning outcomes, coherence of design and a transparent student learning experience (Price *et al.*, 2011:480).

According to Taras (2005:467), the process of assessment entails the steps involved in making a judgement on performance. She states that this judgement cannot simply be made on its own, but requires goals or standards for comparison. For this reason, there is a set of parameters within which judgement takes place. With an increasing emphasis on accountability in higher education over the past two decades, higher education institutions are being forced to provide evidence of quality. This quality refers to meeting the set standards. This has lead these institutions to focus on standards and associated learning outcomes that serve as benchmarks against which quality can be measured (Watty *et al.*, 2014:461). Watty *et al.* (2014:463) refer to quality as “subjects that are aligned to overall programme/course objectives, where learning outcomes are aligned to threshold learning standards that are linked to learning activities and assessments that are reliable and valid”. It

is imperative that assessments be consistently tied to learning outcomes and that the assessment tasks be derived from the learning outcomes (Hussey & Smith, 2002:223).

Because of the high stakes involved in examinations, students are motivated to perform well. Following from this, the cognitive level of examinations could have a major influence on how students approach their studies (Crowe *et al.*, 2008:368). Although assessment has been found to be “at the heart of the student experience” (Brown & Knight, 1994) and to define the curriculum (Ramsden, 1992), Price *et al.* (2008:2) report that clear assessment standards or criteria are not being prepared at the correct level of assessment for higher education. This is alarming, as research has shown that the level of examination questions has an impact on student learning (Jensen *et al.*, 2014:308). Summative examinations should have an appropriate balance of lower-order and higher-order cognitive levels (Jones *et al.*, 2009:3). Educators need to consider their assessment practices not only with regard to what they are assessing, but also why and how they are assessing (Brown, 2004:81).

As discussed in chapter 4, Bloom’s Taxonomy is a well-established framework for categorising assessment questions into the different cognitive levels. With this in mind, this chapter will focus on the link between assessment and learning, assessment at the appropriate levels and the alignment of assessment with the intended learning outcomes.

5.2 PURPOSE OF ASSESSMENT

Assessment in higher education has multiple purposes. Bloxham and Boyd (2011a:30) identify four purposes of assessment: certification, student learning, quality assurance and lifelong learning capacity. Assessment determines which students are chosen for which programmes or for further study and determines students’ progression towards finishing their qualification (Bloxham & Boyd, 2011a:31; Brown *et al.*, 1997; Carless *et al.*, 2007; Fletcher *et al.*, 2012). Bloxham and Boyd (2011a:31) refer to this as **certification** and state that assessment allows for differentiating among different levels of achievement and also among students. Certification is the public’s expectation of assessment (Boud & Falchikov, 2006:401). In professional programmes assessment could provide the student with a licence to practise or it could serve as proof of employability (Bloxham & Boyd, 2011a:31).

Assessment serves as a tool to motivate or control students (Biggs & Tang, 2009:163; Price *et al.*, 2011:481) and thereby promotes **student learning** (Bloxham & Boyd, 2011a:31). Assessment has been found to determine both students’ approach to learning and the content of their learning (Scouller, 1998:454). Marriott and Lau (2008:74) agree that assessment can be used to effectively promote student learning. Assessment also forms part

of the institutional **quality assurance** process and provides vital information to stakeholders (Bloxham & Boyd, 2011a:31; Fletcher *et al.*, 2012; Knight, 2002b; Price *et al.*, 2011:481; Ramsden, 2003; Stivers & Phillips, 2009:259). It provides information to the institution regarding the effectiveness of teaching and to students regarding their learning (Biggs, 2003; Fletcher *et al.*, 2012; Ramsden, 2003; Yorke, 2003). This allows the teacher to make the necessary changes to the teaching strategy (Bloxham & Boyd, 2011a:31). Herring and Williams (2000:2) distinguish between the role of assessment at institutional level and programme or departmental level. At institutional level the role of assessment is to determine whether value has been added to the educational process, and at programme level the purpose is to determine whether the educational objectives have been achieved. A study by Hindi and Miller (2000) showed that curricular and instructional changes were the top-ranked uses of assessment outcomes in the United States. Vos (2000) sees the goal of assessment as feedback to the students on their learning process, to faculty on the effectiveness of the programme and to the teachers on how to improve their teaching and assessments. Sometimes these purposes could, however, be in conflict and one purpose could actually negate the other (Bloxham & Boyd, 2011a:32; Price *et al.*, 2011:481).

Another purpose mentioned by Bloxham and Boyd (2011a:32) is **lifelong learning**. One of the most important roles of higher education institutions is to equip students for a lifetime of learning in the workplace and other social settings (Boud & Falchikov, 2006:399). As Boud (2000:151) states, assessment “needs to be seen as an indispensable accompaniment to lifelong learning”; therefore, equipping students for lifelong learning. Learners are faced with learning tasks all through their lives and they have to be able to complete assessments for these tasks in order to be lifelong learners (Boud, 2000:152).

Bloxham and Boyd (2011a:15) further categorise the purpose of assessment as the assessment *of* learning, assessment *for* learning and assessment *as* learning. **Assessment of learning** is the traditional summative assessment of the achievement of students. These judgements are mainly used for selection and certification purposes, but they also act as a measure of institutional accountability and quality assurance (Bloxham & Boyd, 2011a:15). **Assessment for learning** is formative and allows for teaching/learning activities to be adjusted in response to the needs of students on the grounds of monitoring student achievement (Bloxham & Boyd, 2011a:15). It also recognises the vital role of feedback in student learning (Black & Wiliam, 1998a). With **assessment as learning** the active involvement of the student in assessment provides an opportunity of learning. When students are involved in the assessment activities or use the feedback on assessments, they gain a

better understanding of the subject matter and, therefore, learning takes place (Black & Wiliam, 1998a; Bloxham & Boyd, 2011a:15).

5.3 THE LINK BETWEEN ASSESSMENT AND LEARNING

Gainen and Locatelli (1995:3) define assessment as “the systematic collection, interpretation, and use of information on student characteristics, the educational environment, and learning outcomes to improve student learning and satisfaction”. In other words, assessment is the ongoing process of determining whether the set educational objectives are being achieved in order to improve student learning. In their definition of assessment Huba and Freed (2000:8) state that the assessment process “culminates when assessment results are used to improve subsequent learning”. Both these definitions indicate learning as the end result of the assessment process.

In 1998 Black and Wiliam (1998a:7) reported that research on assessment was moving away from the properties of assessment to the link between assessment and learning. Assessment and learning cannot be viewed in isolation (Hernández, 2012:490). Studies on student learning found that it was not the teaching that influenced student learning most, but the assessment (Gibbs & Simpson, 2004:4; Miller & Parlett, 1974). Students can ignore teaching, but, if they want to graduate, they cannot ignore assessments (Brown, 2004:81). Assessment determines the amount of time that students will spend on their studies (Bloxham & Boyd, 2011a:16; Brown *et al.*, 1994:7) and what they regard as important (Brown & Knight, 1994; Lombardi, 2008:3). It also defines the way in which students see themselves as students and graduates (Brown *et al.*, 1994:7). Assessment, thus, plays a “subtle, complex, and enormously important role in the student’s experiences of learning” (Maclellan, 2001:308).

There is, however, the danger that assessment might become more important than learning. It has been shown that higher-order skills are ranked above technical knowledge in higher education (McConnell *et al.*, 2003:205). Unfortunately, many students are presented with a situation where knowledge is passed to them, which they simply memorise and record in order to pass an examination (McConnell *et al.*, 2003:205). Educators often seem more concerned with grades than with student learning, and this could send the wrong message to students (Taras, 2002:508). Summative assessments also tend to move the responsibility of judging the learning that has taken place away from the students to the person grading the assessment (Boud, 2000:156). High-stakes validating examinations tend to dominate higher education (Black & Wiliam, 1998b:142) and yet they often tend to be unreliable and fail to provide an accurate picture of student performance (Knight, 2002b:107). The tension

between assessment for learning and assessment for validation often causes learning to be neglected (Black & Wiliam, 1998a:18).

There are a number of pressures that influence the ability of assessment to promote the level of learning that is central to higher education. Price *et al.* (2011:483) list these pressures as follows:

- The impact of increased student numbers on assessment and the level of student learning;
- Assessments with limited validity are adopted in search of increased efficiency (e.g., multiple-choice questions) (Knight, 2002a);
- A variety of assessment methods have been developed, but it is not certain whether students get the opportunities to practise using this variety of methods (Gibbs & Dunbar-Goddet, 2007);
- Time is often spent on administration rather than assessment because of complex course structures (Yorke, 2001); and
- A lack of staff development can cause staff to continue using traditional assessment methods (Gibbs & Coffey, 2004; Raven, 1991).

The type of assessment that students expect influence their study strategies when preparing for the assessment (Biggs, 2003; Bloxham & Boyd, 2011a:17; Crowe *et al.*, 2008:368; Scouller, 1998:466).

Scouller (1998:454) reported that students, while favouring a certain approach to learning, might change this approach because of situational factors such as assessment. Assessment plays a vital role in the approach towards learning that a student would adopt. Students are more likely to use the surface approach to learning when preparing for multiple-choice questions and the deep approach in preparing for essay-type examinations (Scouller, 1998:266; Thomas & Bain, 1984). Assessments can, therefore, cause students to use a deep approach to learning (Bloxham & Boyd, 2011a:17). Although studies have shown that a deep approach usually leads to higher performance with regard to grades (Crawford *et al.*, 1998; Gijbels *et al.*, 2005; Hazel *et al.*, 1996; Snelgrove & Slater, 2003; Trigwell & Prosser, 1991), assessment does not always reward the deep approach (Gijbels *et al.*, 2005:329). According to Rowntree (1987), assessment is probably the most important variable affecting students' learning approaches.

Assessment is probably the most important action that a teacher can take to help students learn (Brown, 2004:81). For this reason, educators need to think about their assessment

processes and determine whether they are promoting or hindering student learning (Brown, 2004:81).

5.4 ASSESSMENT TASKS

As far as students are concerned, the assessment is the curriculum (Ramsden, 1992). Thus, it is imperative that “the assessment mirrors what you intend them to learn” (Biggs, 2003). According to Hussey and Smith (2002:223), assessment should be tied to learning outcomes with unprecedented precision and the assessment tasks should be derived from the learning outcomes. Bryan and Clegg (2006:19) call for a reduction in the volume of assignments and an increase in the sophistication of assessment. They suggest that the focus be on a limited number of larger, more complex assignments that test a number of high-level skills in one single performance.

5.4.1 Types of assessment

Biggs and Tang (2009:163) state that the most important reasons for assessing students are formative feedback and summative grading. According to them, although they are seen as types of assessments and based on determining how well students are performing, their purposes are very different. According to Brookhart (2004:6), formative and summative assessments describe the use of assessment information and they state that it is this use of information that distinguishes formative from summative assessment.

5.4.1.1 *Formative assessment*

With the rise of the constructivist theory of learning and the recognition of learning as a social and interactive process, assessment has become associated with a larger range of activities instead of one summative assessment at the end of a module (Crossouard, 2012:894). Bloxham and Boyd (2011a:42) define formative assessment as activities during the course of a module in which students have the opportunity to show or determine their progress. The results of formative assessment are used during learning to determine how the process of learning is progressing and could be used to improve both teaching and the learning of the students (Biggs & Tang, 2009:163). Biggs and Tang (2009:163) also state that formative assessment and teaching is inseparable and that the effectiveness of teaching methods is directly related to their ability to provide formative feedback. Formative assessment is also known as “assessment for learning” (Crossouard, 2012:894).

Formative assessment is regarded as “low-stakes” and, therefore, reliability is not such an issue (Knight & Banks, 2003:45). These assessments are low-stakes because, although they

are designed to provide learners with feedback on their performance and are required for progress through the course (Knight & Banks, 2003:44), they do not warrant or certify the student's achievements (Knight & Banks, 2003:42). Light *et al.* (2009:203) outline the purpose of formative assessment as development, improvement and learning. The main issue that distinguishes formative from summative assessment is the feedback which indicates the difference between the actual level of performance and that which is required from the student (Taras, 2005:468). Black and Wiliam (1998b) summarised the evidence from 250 articles across all levels of education, countries and subject areas and found that formative assessment does improve learning. Rowntree (1987) states that formative assessment is "the life blood of learning".

5.4.1.2 **Summative assessment**

Summative assessments are used to provide grades or certification of a level of achievement to students at completion of a module or accreditation at the completion of a programme (Biggs & Tang, 2009:164; Boud & Falchikov, 2006:401). Taras (2005:468) defines it as "a judgement which encapsulates all the evidence up to a given point". Therefore, summative assessment occurs when teaching has concluded and has the purpose of determining whether the student has learned what was intended (Biggs & Tang, 2009:164). Elton and Johnston (2002:27) claim that the purpose of summative assessment is "assessment for decision making". For this reason, summative assessments can be regarded as high-stakes assessment, as they provide information to prospective employers or graduate schools regarding students' achievements, allowing them to choose students who fit the profile they require (Knight, 2000:240).

According to Knight and Banks (2003:42), most assessments in higher education are summative. Boud (2000:152) agrees that the emphasis on summative assessment in higher education has been too high and that it has taken up too many resources and too much time to the disadvantage of the learner. Boud (2000:156) further argues that summative assessment measures learning but, at the same time, "drives out learning". Students are not able to judge how well they are doing if assessment is left until the end of a module (Bloxham & Boyd, 2011a:42).

Yorke *et al.* (2000:9) contend that formative coursework presents the learner with a greater learning experience than the summative examination does. However, it is also more prone to issues such as plagiarism and cheating. According to Yorke *et al.* (2000:8), the literature has shown that there is usually a difference in marks scored in formative coursework and marks scored in formal examinations. This is due to the fact that students have access to

information, can work with other people and have little time restrictions in formative assessments (Yorke *et al.*, 2000:14). Yorke *et al.* (2000) studied the mark distribution patterns between subjects and found that subjects such as mathematics or science had a larger distribution of marks than, for example, history. The reason is that history usually requires essay-type answers and is marked differently: Students will not get everything wrong, nor will they reach perfection. So the result is a limited range of marks.

Yorke *et al.* (2000:9) warn against voting one type of assessment as being better than the other because of the differences in the purpose of the type of assessment. Marriott and Lau (2008:76) concur that both formative and summative assessments have strengths and weaknesses and that the best features of both should be combined within a course.

Summative assessments have to be able to stand up against legal judgement and, therefore, have to be reliable. Following on this, aspects covered in summative assessments tend to receive the attention of learners and lecturers, while aspects that are not covered are often not dealt with by students. This causes summative assessment to dictate the “enacted curriculum” (Knight & Banks, 2003:44).

5.4.2 Methods of assessment

Research has shown the importance of the method of assessment that is used (Scouller, 1998:454). An assessment method refers to the task to be undertaken by the learners and should not be confused with assessment criteria (see paragraph 4.2.4, page 75). These assessment tasks have the purpose of determining whether the student has achieved the learning outcomes (Moon, 2002:17).

Assessment is the systematic evaluation of a student’s learning by making use of a range of assessment methods (Hassan, 2011:327). The range of assessment methods has expanded over the past few years from multiple-choice questions and essays to portfolios, self- and peer assessment, simulations, etc. (Struyven *et al.*, 2005:326).

Methods of assessment include the following (Elton & Johnston, 2002:27):

- Unseen examination, with or without choice questions;
- Open-book examination;
- Examination where information is provided in advance;
- Multiple-choice questions;
- Coursework assignment;

- Oral examination;
- Assessed report, dissertation or thesis;
- Assessment which is negotiated between the teacher and the student;
- Self- and peer assessment; and
- Group assessment.

Brown (2004:82) adds portfolios, in-tray exercises, posters, annotated bibliographies, reflective commentaries, critical incident accounts, reviews, role plays and case studies to the list of assessment methods. The purpose of the assessment will determine the assessment method (Brown, 2004:82). Different learning outcomes should be assessed by different types of assessment, while similar learning outcomes should be assessed by similar types of assessment even if the subject matter is different (Airasian & Miranda, 2002:249). Knight and Banks (2003:47) emphasise that examinations, time-constrained class tests, project reports, presentations, laboratory reports, design studies, vivas and orals, and poster presentations are the most common assessment methods.

It is important that the assessment methods be focused on establishing whether the student has mastered an outcome instead of on the reiteration of knowledge (Brown, 2004:82). According to Brown (2004:82), this implies a lesser focus on time-constrained written examinations and more use of methods which prove students' ability to apply their knowledge in situations. This links back to the importance of aligning assessments with the intended learning outcomes.

The assessment method that is chosen should be adequate to measure whether the intended learning outcomes of the module have been achieved. Final summative examination papers are used to test students' retention and application skills (Jones *et al.*, 2009:3). Traditionally, the written examination has dominated assessment of student learning and it is still being used as an assessment method in most undergraduate programmes (Scouller, 1998:454). Employers often use the results of these written examinations to identify the students they wish to employ (Knight, 2000:240). Jones *et al.* (2009:3) argue that summative final examination papers have an appropriate balance between lower-, intermediate- and higher-order cognitive questions. Although the use of written examinations has been widely criticised, Brabrand (2008) opines that it should be recognised as "a powerful pedagogical and motivational instrument". The written examination remains one of the most common methods to assess the accumulation of student knowledge (Jones *et al.*, 2009:1).

5.5 PRINCIPLES OF ASSESSMENT

5.5.1 Validity

The validity of assessment pertains to whether the assessment is assessing what it should be assessing (Biggs & Tang, 2009:188; Elton & Johnston, 2002:11). This is referred to as **face validity** (Elton & Johnston, 2002:40). Bloxham and Boyd (2011a:24) claim that an assessment activity is valid if it assesses the stated learning outcomes. This is referred to as **intrinsic validity**. The concept of “intrinsic validity” clearly supports the process of constructive alignment (refer to chapter 6, page 124) (Bloxham & Boyd, 2011a:34). Elton and Johnston (2002:30) add that it is often difficult to measure validity exactly, as it relies on the opinion of an expert. But they do provide three aspects that such an expert would look for in determining whether an assessment is valid: Assessment should not test outside the stated learning outcomes, not test too selectively within the learning outcomes, and not test at an inappropriate level.

However, Prosser and Trigwell (1999) warn that assessments do not necessarily measure what the teacher believes it does, because of differences in the way students understand what is expected from them. Knight (2000) showed that students' assignment results do not necessarily reflect their level of achievement and that these results can depend on the amount of direction and support the students have been given. Similarly, Knight (2006:443) states that, even in the English school system where national curriculums are used, assessment criteria are published and trained examiners are used, it is hard to determine whether grades can be attributed to deep learning or coaching by teachers.

According to Elton and Johnston (2002:11), teachers often assess content that can be tested reliably but does not necessarily relate to the learning outcomes, or they do not assess areas of the curriculum that are difficult to assess. Learning could suffer from these practices, as students take their cues from assessments more than from what is taught in the classroom. These practices are clearly inexcusable.

5.5.2 Reliability

An assessment is reliable when it achieves consistent marks across time, across markers and across methods (Bloxham & Boyd, 2011a:38). Reliability is about being very clear about learning outcomes and the evidence required for those learning outcomes (Biggs & Tang, 2009:189). All those involved should clearly understand what is expected of them (Brown, 2004:84). Elton and Johnston (2002:11) distinguish between marker reliability, which occurs

when two markers award the same mark for an assessment, and paper reliability which is when a student achieves similar marks for two papers that are supposedly equivalent. Research has shown that marker reliability is usually low. Paper reliability has not been researched much, because students are rarely subjected to two equivalent papers (Elton & Johnston, 2002:11). But Elton and Johnston (2002:11) warn that it is difficult to assess whether papers or questions are of comparable difficulty and that many lecturers do not use words such as “discuss”, “compare”, etc., consistently and do not explain the difference in the meaning of these types of words to their students. Sadler (2010:733) contends that educators grade assignments based on their level of expertise, experience and expectations of how others would grade the assignment. Students expect comparable grades even if the assessment was done by different lecturers, but this is not often the case. In general, reliability is expensive and could be difficult to achieve because some qualities and skills cannot be assessed reliably without being intrusive (Knight, 2000:238; Knight & Banks, 2003:43). Furthermore, reliable assessments are often not good at predicting performance in real-life situations (Knight & Banks, 2003:43).

5.5.3 The trade-off between reliability and validity

The value placed on degrees are high and, therefore, it is imperative that the assessments on which they are based be reliable and valid (Knight, 2000:237). However, Bloxham and Boyd (2011a:40) point out that, although reliability is particularly important when it comes to the purposes of certification and quality assurance, it might defeat the purpose of validity. There is often a trade-off between reliability and validity (Bloxham & Boyd, 2011a:40; Elton & Johnston, 2002:11). Knight (2000:237) agrees that the concepts of validity and reliability “interfere with each other”. Knight (2000:238) sets out the interplay between validity and reliability as follows:

Table 5.1: The interplay between reliability and validity in the assessment of learning

	High reliability (especially important in high-stakes assessments such as degree awards)	Low reliability (characteristic of situated judgements of complex performances or of aesthetic works)
High validity (important where an award certifies someone to be competent to practise)	The holy grail of assessment. Valid, reliable assessment of complex outcomes (qualities, skills, understanding and information) is expensive.	In low-stakes assessment where there is relatively open dialogue between assessor and the assessed, limited reliability is not such a significant matter.
Low validity (not a desirable feature of assessment but often an obvious characteristic of test-like assessments)	These assessments can be useful when they are used as intended by people who know their limitations: IQ tests are a paradigm example.	In the busy flow of daily life we invariably make many low-reliability, low-validity assessments. This does not make them desirable.

Source: Knight (2000:238)

According to Knight (2000:238), two problems arise with assessments which are both valid and reliable. They are very expensive, and some qualities and skills simply cannot be tested in a reliable and valid way. Watty *et al.* (2014:466) indicate that, if assignments are to be valid, educators should attempt to increase the reliability thereof through the use of assessment criteria, grade descriptors and marking rubrics.

5.5.4 Transparency

Bloxham and Boyd (2011a:42) explain that “[i]nformation, guidance, rules and regulations on assessment should be clear, accurate, consistent and accessible to all staff, students, practice teachers and external examiners”. It has been said that institutions of higher education have become more subject to external review in recent years. Transparency involves the rules and procedures, including the development of clear learning outcomes, assessment and marking criteria, second marking, moderation, etc., which are needed to facilitate this external judgement (Bloxham & Boyd, 2011a:42). These criteria should be available and clear to everybody concerned, namely the assessors, students and moderators (Brown, 2004:82). There has been a call for greater transparency in higher education (Rust *et al.*, 2003:174).

5.6 THE LEVEL OF ASSESSMENT

The cognitive level of examinations has a direct impact on the level of learning of students throughout a particular course (Jensen *et al.*, 2014:308). It has been shown that literacy and thinking can be enhanced when examination questions are set at the higher cognitive levels of Bloom's Taxonomy (Bush *et al.*, 2014:3). Jones *et al.* (2009:4) mention that, by using a blend of higher-order and lower-order questions, students' reasoning and problem-solving skills can be improved. Yet, according to Bloom *et al.* (1956), educators tend to focus on lower-order skills 80–90% of the time. Various researchers have analysed the level of assessment based on Bloom's Taxonomy. In the following section the findings of some of these studies are presented.

Jones *et al.* (2009) investigated examination papers of second- to final-year students in a range of engineering and technology subjects in the general field of electronics, and categorised them into low (knowledge and comprehension), intermediate (application and analysis) or higher-order (synthesis and evaluation) cognitive levels by focusing on the verbs in the question. The results showed that most of the questions were at the lower cognitive levels. It was, however, stated that this could be justified by the fact that higher-order skills in the field of engineering are tested in assignments. The results of another study in the field of engineering (Swart, 2010) showed a noticeable difference between proposed cognitive levels and actual levels of questions, with many of the questions being lower-order questions.

At a national meeting for biology education, 97% of educators who attended admitted that 75% of their examination questions tested only the lower-order cognitive skills (Crowe *et al.*, 2008:379). In a similar vein, the results of another study on biology (Momsen *et al.*, 2010) found that the majority of questions tested the lower cognitive levels. Lucas *et al.* (2014) also reported the majority of the questions in biochemistry and zoology examination papers to be in the lower cognitive levels. Zheng *et al.* (2008:414) found that the assessments of some traditional first-year medical courses were at too low levels of Bloom's Taxonomy.

Oliver *et al.* (2004) analysed and categorised the examination questions of six modules in a single university according to the six cognitive levels of Bloom's Taxonomy. These ratings were used to calculate a difficulty metric referred to as a Bloom rating. It was found that some programming courses at a lower level of study were cognitively more demanding than some of the more advanced courses. In classifying the final examinations of first-year courses in programming at six universities, Thompson *et al.* (2008) suggested that the cognitive level of a question could be altered by rewording the question.

Johnson and Fuller (2006) examined 54 assessments of first-year computer science courses in order to determine the cognitive levels according to Bloom's Taxonomy. They found that lecturers responsible for convening and delivering the modules and the assessors who analysed the assessments disagreed on the level of examination. The lecturers in general felt that most of the assessments were on the analysis level, whereas the assessors felt that they were at the application level.

In the field of accounting an analysis of 364 assessment items showed that 64% of these questions represented the three lower-order cognitive levels of Bloom's Taxonomy (knowledge, comprehension and application) (Yap *et al.*, 2014). This is out of line with what the industry requires, which is more of the two higher-level cognitive skills, evaluating and creating. Although educators' goals might be to test students at all the levels of cognitive skills, it seems as if students are not provided with enough exercise on how to use content and skills at the higher cognitive levels (Crowe *et al.*, 2008:379).

In chapter 4 previous studies on the use of Bloom's Taxonomy in the development and assessment of learning outcomes were presented (Table 4.4, page 95). The following table provides a summary of the research on the use of Bloom's Taxonomy in analysing assessments according to the cognitive levels of learning:

Table 5.2: Studies on analysing the cognitive levels of assessments

Authors	Subject area	Method	Scope	Summary of findings
Studies using the original Bloom's Taxonomy				
Momsen et al. (2010)	Biology	Mixed method Content analysis	77 courses over two-year period	Analysed the assessments of introductory biology courses according to the cognitive levels of Bloom's Taxonomy. They found examination questions mostly tested the lower cognitive levels.
Yap et al. (2014)	Accounting	Mixed method Content analysis Student survey	12 courses 328 assessment items	64% of the assessment items analysed related to the lower-order cognitive levels of Bloom's Taxonomy (knowledge, comprehension and application).
Oliver et al. (2004)	Information technology	Quantitative Content analysis	Six IT courses One university	They found that the cognitive level of courses did not increase with upward progression within a degree. Some programming courses at a lower level of study were cognitively more demanding than some of the more advanced courses.
Swart (2010)	Electrical engineering	Qualitative Historical research	Five years Four year levels	A noticeable difference was noted between proposed percentages of higher-order and lower-order questions. It was found that a high percentage of final examination questions dealt with the lower-order cognitive levels of Bloom's Taxonomy with many of the questions requiring mathematical equations to solve unknowns. A substantial percentage of the assessments required application. This was the case for all four year levels.

Authors	Subject area	Method	Scope	Summary of findings
Johnson and Fuller (2006)	Computer science	Qualitative	54 assessment First year	They found that lecturers and the assessors disagreed as to the level of examination and that lecturers in general felt that most of the assessments were on the analysis level, whereas the assessors felt they were at the application level.
Lucas <i>et al.</i> (2014)	Biochemistry and zoology	Quantitative Action research	Eight examination papers Two modules	77% of the questions related to the lower three cognitive levels of Bloom's Taxonomy.
Zheng <i>et al.</i> (2008)	Medical courses	Mixed method	Five courses 586 questions	They found that the cognitive levels tested in traditional first-year medical courses were at too low levels of Bloom's Taxonomy.
Jones <i>et al.</i> (2009)	Engineering		One academic year Eight programmes	They found that few questions were in the higher-order levels. This was, however, deemed to be acceptable, as higher-order skills were tested in assignments in the discipline of engineering.
Studies using the revised Bloom's Taxonomy				
Dunham <i>et al.</i> (2015)	Statistics		Six examination papers One year	Presented guidelines for the application of Bloom's Taxonomy in statistics.
Thompson <i>et al.</i> (2008)	Programming	Qualitative	First-year courses Six universities	They classified written final examinations according to the cognitive and knowledge dimensions of the revised taxonomy. They found that the cognitive level of a question could be altered by rewording the question. A shared understanding of the revised taxonomy could prove valuable to lecturers in setting examination papers.

Authors	Subject area	Method	Scope	Summary of findings
Other studies on taxonomies and assessment				
Nentl and Zietlow (2008)	Business	Qualitative		They suggest that Bloom's Taxonomy can be used for the development of assignments and measurement of whether critical thinking has occurred.
Starr et al. (2008)	Biology	Qualitative		They showed that using Bloom's Taxonomy for specifying learning outcomes prior to assessment facilitated programmatic assessment, benefited instructors in selecting tools for assessment, and enhanced communication between faculty engaged in curricular development.
Crowe et al. (2008)	Biology	Qualitative		They developed a tool to develop and identify biology questions representing the different levels of Bloom's Taxonomy. They suggest this could be used to design questions to help students develop critical thinking skills.
Ragan and Ragan (2004)	Corporate finance	Qualitative		They illustrated how a corporate finance topic might be structured by using course objectives and learning outcome standards and how assessment tools can be developed in order to measure whether these learning outcome standards have been achieved. The study also focused on the action verbs used in assessment as a means to determine the level of difficulty associated with the examination.

Source: Researcher

5.7 ASSESSMENT IN ACCOUNTING EDUCATION

The literature on accounting education lacks work on assessment. In literature reviews on accounting education for the period 1999 to 2009 only 48 of the more than 1 100 papers were on assessment (Curtis, 2011:192). Knight (2000:237) expresses his concern regarding the limited amount of research into the assessment of learning in higher education. Healy *et al.* (2014:468) point out that most of the research on assessment in accounting education focus on specific interventions by lecturers such as group assessment, peer assessment or online assessments and students' reactions to these interventions. Little research has, for example, been done on the influence that assessment has on student learning from the perspective of the student (Watty *et al.*, 2010:219).

In a study by Watty *et al.* (2014) it was found that a process of social moderation or collaboration between accounting academics improved a shared understanding of learning standards and helped them to design valid assessments. This process could also assist in achieving comparable learning standards for accounting graduates regardless of the higher education institution.

Yap *et al.* (2014) investigated a single Master of Professional Accounting (MPA) Programme and found that the majority of assessment tasks focused on the lower-order cognitive skills: Of all the assessment items 92% tested cognitive skills and 8% tested behavioural skills. Of the 92% cognitive skills, 64% related to the lower-order skills such as knowledge (2%), comprehension (39%) and application (23%). Almost half of all the assessments offered in this programme were examinations.

In a study by Palm and Bisman (2010:192) in which 21 universities were surveyed, the final examination in introductory accounting accounted for 61–80% of the total assessment. Furthermore, 75% of these universities indicated that they also made use of examinations and tests during the semester. The study further revealed that, although the development of generic skills was listed in the learning outcomes, there was often no assessment activities to assess whether these skills have been developed.

5.8 SUMMARY

This chapter has shown that educators need to be informed about assessment practices with regard to what they are assessing, how they are assessing and why they are assessing. It was shown that students see previous assessments as the actual curriculum and, therefore, it is important that the assessments be indicative of what educators intend the students to

learn. Written summative examinations have been widely criticised; however, it remains the most common method to test whether students have indeed accumulated the required knowledge and it should be recognised as a powerful motivational and educational tool. The end result of assessment is learning. This chapter showed the link between assessment and learning. It was shown that it is assessment that influences learning most and not the teaching. Although it has been found that assessment is at the heart of the student experience, research has shown that clear assessment standards or criteria are not being prepared at the correct level of assessment for higher education.

Students are assessed for formative feedback and summative grading. Formative assessment enables students to monitor their progress throughout the learning process while summative assessment is used to provide certification at the completion of a programme. The purpose of summative assessment is to determine whether the student has indeed learned what was intended. It is imperative that summative assessment is reliable as it has to be able to stand up against legal judgement.

High value is placed on higher education degrees and, thus, assessments must be valid and reliable. Assessments are valid when they test the actual learning outcomes. It is imperative that assessments be tied to learning outcomes with unprecedented precision and that the assessment tasks be derived from the learning outcomes. The principle of validity clearly supports the process of constructive alignment. Although validity relies on the opinion of an expert, the aspects that the expert would look for are as follows: assessment should not test outside the stated learning outcomes, it should not test too selectively within the learning outcomes, and it should not test at an inappropriate level. Assessment can be seen as reliable when it achieves consistent results across time, markers and methods. Learning outcomes play an important role in reliability. The learning outcomes and the evidence required for the learning outcomes need to be clear in order for assessment to be reliable. It can, however, prove difficult to determine whether papers are at comparable levels of difficulty because of inconsistent use of certain words such as “discuss” and “compare” and because of different levels of expertise, experience and expectations of educators.

It was shown that the cognitive level of assessment has a direct impact on the level of students’ learning. Yet, previous research on assessment indicates that educators often focus on the lower cognitive levels in their assessments. Research on assessment in accounting education was also shown to be lacking.

This chapter explored the role of assessment in the higher education process. Chapter 6 will address constructive alignment with a focus on the alignment between learning outcomes and assessments.

CHAPTER 6:

ALIGNMENT OF ASSESSMENTS TO EDUCATIONAL LEARNING REQUIREMENTS

6.1 INTRODUCTION

Chapter 6 aims to conceptualise the process of constructive alignment and its role in enhancing student learning, thereby addressing secondary objective 1.5.2.4 (page 11). There has been a shift in higher education towards students' taking responsibility for their own learning and educators' serving as facilitators who coordinate the activities required for learning to take place and support the learning strategies (Kuhn & Rundle-Thiele, 2009:352). This view is in line with the theory of constructive alignment (Kuhn & Rundle-Thiele, 2009:351). Constructive alignment means that the whole course is aligned, i.e. learning outcomes, teaching/learning activities and the assessments (Bloxham & Boyd, 2011a:27).

The importance of learning outcomes in the educational process was stressed in chapter 4. Learning outcomes also serve as the starting point of constructive alignment (Kuhn & Rundle-Thiele, 2009:352) and constructive alignment can be successful only if the learning outcomes are meaningful (Light *et al.*, 2009:81) and are stated clearly and precisely (Biggs, 1999:11). These outcomes have to be consistent with how the content of the module is delivered and how it is assessed (Blumberg, 2009:93). The alignment of the learning outcomes with the assessments is the basic principle of constructive alignment (Bloxham & Boyd, 2011a:27).

It has been shown that a constructively aligned module encourages students to engage in the deep approach to learning instead of the surface approach (Wang *et al.*, 2013). Constructive alignment, therefore, improves student learning (Blumberg, 2009:96). Yet, educators are often not aware of this and do not pay attention to the alignment of their modules (Blumberg, 2009:103; Crowe *et al.*, 2008:368). Several studies have highlighted this lack of alignment between learning outcomes and assessment (Airasian & Miranda, 2002; Blumberg, 2009; Johnson & Fuller, 2006; Jones *et al.* 2009; Lucas *et al.*, 2014; Momsen *et al.*, 2010; Oliver *et al.*, 2004; Wang *et al.*, 2013; Zheng *et al.*, 2008). The lack of alignment has also been evidenced in accounting and finance (Herbert *et al.*, 2009; Mladenovic, 2000; Palm & Bisman, 2010; Ragan & Ragan, 2004; Scully & Kerr, 2014; Yap *et al.*, 2014). Even

the professional accounting bodies do not always align their stated learning outcomes, examinations and assessment, as was evidenced in a study by Herbert *et al.* (2009).

Given the important role of constructive alignment in student learning this chapter aims to explain the process of constructive alignment and its role in the process of learning, with a specific focus on constructive alignment in accounting education.

6.2 CONSTRUCTIVE ALIGNMENT

Constructive alignment arose out of an assessment experiment by John Biggs with a course in a bachelor of education programme. Biggs required the students to compile a portfolio of evidence of how psychology improved their teaching, without guiding them on what the content of the portfolio should comprise. This forced the students to reflect on the theories and to project how the theories had impacted their own teaching (Biggs & Tang, 2009:51). Biggs concluded that two theories were involved: a constructivist theory of learning and an alignment of learning outcomes, teaching activities and assessment tasks, and hence the term “constructive alignment” was formed (Biggs & Tang, 2009:50).

6.2.1 The process of constructive alignment

The learning outcomes are the starting point of the process of constructive alignment. Learning outcomes are the skills and knowledge that students are expected to have mastered at the end of a module. Educators can, therefore, begin to align their courses by determining what knowledge, skills and attributes are expected of the students (Kuhn & Rundle-Thiele, 2009:352). After developing the learning outcomes, the teaching/learning activities that will facilitate the student in reaching the intended learning outcomes are developed. The final step is to determine whether students have actually learned what was intended. This step involves developing the assessment tasks used to test whether the required knowledge, skills and attributes were actually acquired by the student. Bloxham and Boyd (2011a:27) indicated the alignment of the learning outcomes with the assessment tasks as the basic principle of constructive alignment.

Anderson (2002:256) illustrates the process of constructive alignment in Figure 6.1:

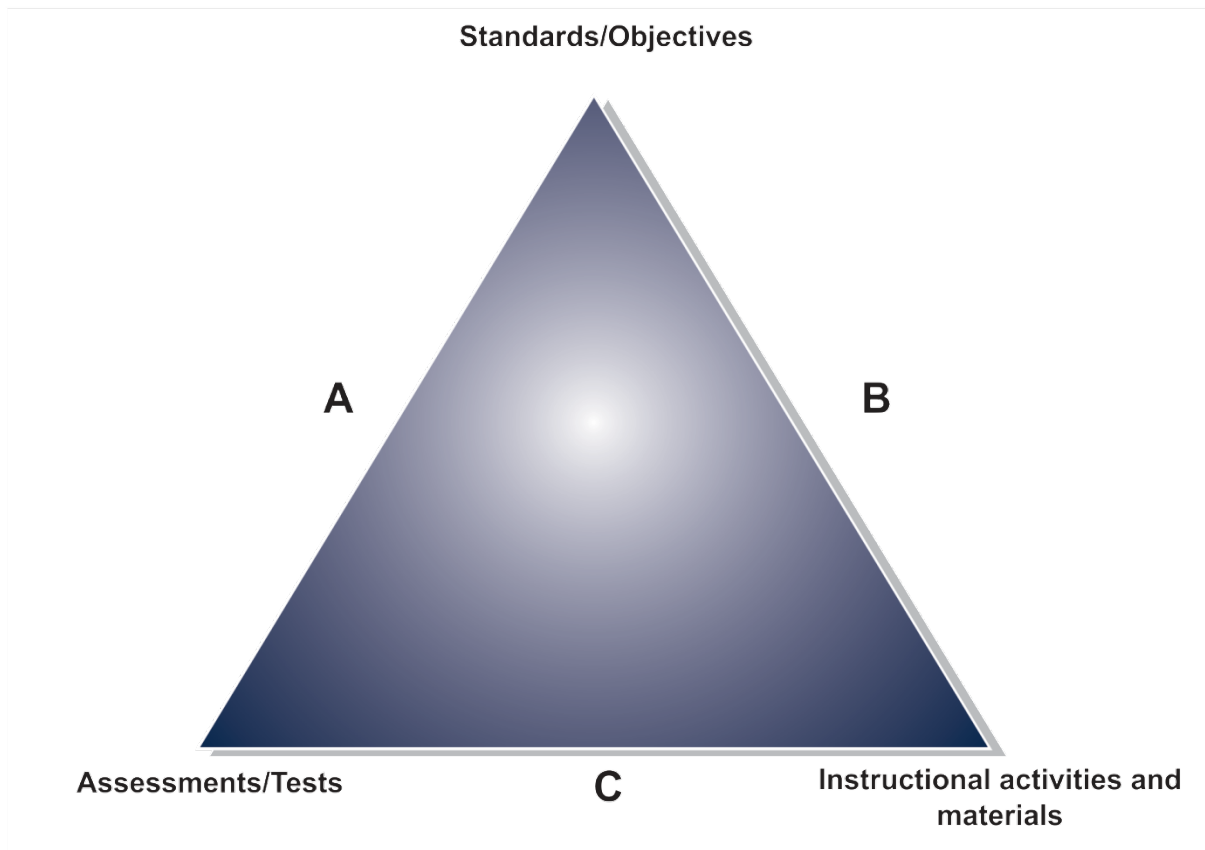


Figure 6.1: Relationship among standards/objectives, instructional activities and materials, and assessments/tests

Source: Anderson (2002:256)

Figure 6.1 contains the three primary elements of curriculum, namely objectives or learning outcomes, instructional activities, and the assessments. These elements stand in relation to one another, which is presented by the sides of the triangle in Figure 6.1 (Anderson, 2002:255). According to Anderson (2002:255), side A of Figure 6.1, which represents the relationship between objectives and assessment, is presented in the literature as “test and measure” and deals with content validity. Content validity refers to the degree in which the assessment actually assesses the stated objectives (refer to paragraph 5.5.1 on page 113 for a discussion on content validity). Side B is the relationship between the objectives and the instructional activities. Side C deals with the relationship between the instructional activities and assessments, and research in this area refers to “content coverage” and “opportunity to learn”. The difference between these two concepts is that, with content coverage, the analysis begins with the teaching materials, whereas with opportunity to learn the study begins with the assessment. Although many studies have focused on the relationship between objectives and teaching activities (side C), no general term has been given to these studies. The term “curriculum alignment” refers to the figure as a whole. That is, there has to

be a strong relationship between objectives and assessment, objectives and instructional activities or materials, and instructional activities and assessment (Anderson, 2002:257).

Constructive alignment can be seen as a systematic theory according to which all the components of teaching make up a whole system (Brabrand, 2008:2). Constructive alignment implies that everything from the learning outcomes, assessment criteria, learning and teaching methods and assessment methods should be aligned. The prerequisite for a constructively aligned assessment process is that the whole course be constructively aligned. The idea that course objectives should be aligned with assessment is the basic principle of constructive alignment and, therefore, constructive alignment emphasises the importance of intended learning outcomes (Bloxham & Boyd, 2011a:27). From the above, it can be concluded that, for a course to be constructively aligned, it is essential that the learning outcomes be “clear and explicit” (Biggs, 1999:11). Thota and Whitfield (2010:106) agree that constructive alignment can be successful only if learning outcomes are specified clearly.

Light *et al.* (2009:81) stress the fact that merely being aligned is not sufficient. The module has to be aligned according to meaningful learning outcomes. Teaching activities and assessments aligned with low-level learning outcomes would simply lead to reproductive alignment where the student would simply reproduce information and meanings transmitted from the teacher on the assessment (Light *et al.*, 2009:81).

Constructive alignment differs from OBE in that it is not a closed circle focusing on only that which was predetermined (Biggs & Tang, 2009:53). Another difference is that, with constructive alignment, the learning outcomes, the teaching/learning activities and the assessment tasks are aligned intrinsically based on the learning activities stated in the outcomes statements. In OBE the alignment is only between the learning outcomes and the assessment tasks (Biggs & Tang, 2009:53).

According to Biggs and Tang (2009:54), the four stages of constructive alignment are as follows:

Stage 1: Define the intended learning outcomes.

The intended learning outcomes should be described in the form of a verb, and the context and the standard that the student should achieve have to be specified.

Stage 2: Create or choose teaching/learning activities.

The teaching/learning activities should address the verb in the learning outcome.

Stage 3: Create assessment tasks.

The assessment tasks should contain the same verb. This will help the educator to judge whether the students' performance meets the criteria.

Stage 4: Transform judgements into standard grading criteria.

The current study focused on stages 1 and 3 in that the alignment of learning outcomes to assessments in CA programmes was analysed.

In a constructively aligned model the topics that are covered in the curriculum are translated into learning outcomes which are addressed by the learning activities and assessment tasks (Biggs & Tang, 2009:54). As Biggs and Tang (2009:54) state, "all components in the system address the same agenda and support each other". Biggs and Tang (2009:3) argue that constructive alignment can be used to address the problem of diverse students with diverse abilities. They argue that learning activities that are likely to lead to the intended outcomes be used and that constructive alignment is the process with which to achieve this. Constructive alignment is a method to engage students in the deep approach to learning (Biggs & Tang, 2009:54). Cohen (1987) confirms that student learning increase when assessment is aligned with what should be learned as set out in the learning outcomes. He even refers to this alignment as the "magic bullet" to increasing student performance.

According to Biggs and Tang (2009), a course is constructively aligned when:

- The intended learning outcomes are clearly defined;
- The intended learning outcomes are explicitly communicated to the students;
- The assessments match the intended learning outcomes; and
- The teaching/learning activities match the intended learning outcomes.

6.2.2 The need for alignment

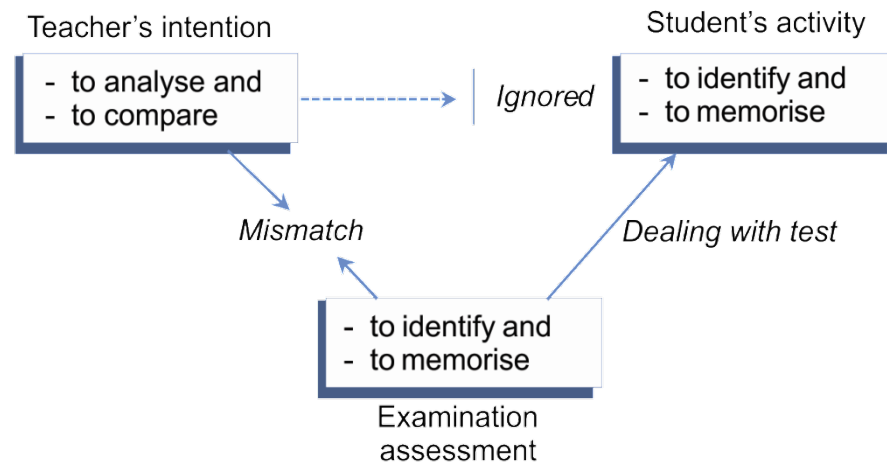
Educators are often not aware of the importance of alignment and, therefore, the alignment between the learning outcomes, teaching activities and assessment often does not receive enough attention (Blumberg, 2009:103). Although constructive alignment includes both constructivist teaching and alignment, the alignment is often ignored in course design and

classroom practices (Blumberg, 2009:96; Wang *et al.*, 2013:488) and, as a result, courses might not be aligned (Blumberg, 2009:96).

Alignment is likely to improve students' learning (Blumberg, 2009:96; Roach *et al.*, 2008:159). This is because students would have a greater chance of reaching the intended learning outcomes of the course if the course is aligned (Blumberg, 2009:96). Alignment also helps educators to recognise the role of teaching in learning (Anderson, 2002:259). Teachers might be of the opinion that they are teaching well, but, if the teaching is not aligned with the learning outcomes or the assessment, the teaching is of no use. Therefore, the effect of teaching is underestimated if it is not aligned with assessment and learning outcomes (Anderson, 2002:259).

Figure 6.2 shows the difference between a module that is aligned versus a module that is not aligned. When a module is unaligned, as in Figure 6.2(a), the assessment does not measure what was intended by the teacher. In this case the teacher intended to assess “analyse and compare”, but the examination measured “identify and memorise”. The student will pick up on this and only study for that which is required in the examination. This is referred to as “dealing with the test”. In an aligned module as in Figure 6.2(b), the teacher aligned the assessment with the learning outcomes and the student has to learn the learning outcomes. In this case the student has to be able to “analyse and compare”, as this is what is assessed in the examination. In this scenario the student uses his motivation to pass the module to learn. The student, however, still needs support to master these outcomes, which is achieved by choosing the appropriate teaching/learning activities (Brabrand, 2008:6).

(a) An unaligned module



(b) An aligned module

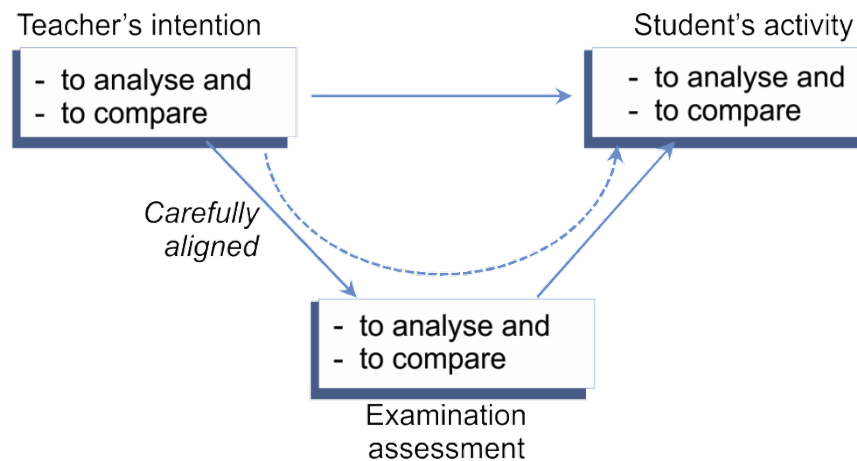


Figure 6.2: An unaligned versus aligned module

Source: Brabrand (2008:5)

Brabrand (2008) implemented constructive alignment in an undergraduate course on model-based design for concurrency which consisted of a group project and an individual multiple-choice test. He developed intended learning outcomes and carefully based the teaching and examination on these explicit outcomes. He followed a mixed-method approach and drew both subjective and objective conclusions. Objectively, by using quantitative information, he concluded that the projects, after implementation of constructive alignment, showed better correspondence between model and implementation. He also reported that the post-alignment course incorporated more of the higher cognitive level outcomes than the pre-alignment courses. Brabrand (2008) posited, subjectively, that constructive alignment optimised the teaching system by motivating students to learn and supporting them in doing so. He further stated that constructive alignment caused him, as lecturer, to make more informed and conscious decisions instead of acting on his intuition. Cohen (1987) also

showed that instruction results greatly improve when curriculum and assessment methods are aligned. In a study of published research, Cohen (1987) put forward three conclusions: instructional alignment had a significant effect on teaching with minimal effort; what to teach is more important than how to teach; and a lack of excellence in teaching is not because of ineffective teaching, but because of misalignment. Thota and Whitfield (2010) implemented constructive alignment in a computer science course and found that students' perceptions of programming were changed positively.

Airasian and Miranda (2002:249) explain that the information obtained by the assessment process is influenced by both the instruction that preceded it and the learning outcomes. It, therefore, follows that the validity of the assessments relies on the degree of alignment between learning outcomes, teaching and assessment.

6.3 ALIGNING ASSESSMENT TASKS WITH LEARNING OUTCOMES

Learning outcomes are the drivers of constructive alignment (Lucas & Mladenovic, 2004:402). The development of clear learning outcomes is an integral part of the planning of a course, and the learning outcomes should be aligned with the way in which the course is delivered and assessed (Biggs, 1999:11; Bloxham & Boyd, 2011a:27; Blumberg, 2009:93). The final step in the process of constructive alignment is developing assessment tasks in order to determine whether the required knowledge, skills and attributes were actually acquired by the student. As mentioned previously, Bloxham and Boyd (2011a:27) indicate that the alignment of the learning outcomes with the assessment tasks is the basic principle of constructive alignment.

Blumberg (2009:96) proposes that every learning outcome has to have at least one teaching/learning activity and assessment task that correspond with that learning outcome. Blumberg (2009) provides a method for determining whether modules are aligned. She suggests that the learning outcomes of the module be plotted in a table with the intended teaching/learning activities and the assessment task. Each of these should be listed in the cognitive dimension to which it relates. An example of this is provided in Table 6.1 (page 133). This table makes it possible to identify when learning outcomes, teaching and learning activities and assessment tasks are not aligned. She suggests that such a table be completed for every module outcome in a programme.

The steps for determining whether a course is aligned are as follows, using table 6.1:

- i. Place the learning outcome in the correct column according to the applicable verb in the cognitive process dimension. This should be done from the student's

perspective, i.e. what the student should be able to do upon completion of the module.

- ii. List the teaching activity associated with this outcome listed in (i) in the correct column according to the verbs listed in the cognitive process dimension. The decision regarding where to place the activity has to be made based on the cognitive level that will be required from the student during the activity.
- iii. List the assessment activity in the correct cell according to the cognitive level required in the assessment. The placement will be determined by the cognitive level required from the student in completing the assessment.
- iv. When a learning outcome does not have an associated teaching activity or assessment, it should be indicated in the second column. Blumberg (2009:97) warns that a course is not aligned if it does not have at least one assessment and one teaching activity for each learning outcome.
- v. Draw a line connecting the learning outcome, teaching activity and assessment. A straight vertical line indicates that the module is aligned, but diagonal lines without a corresponding vertical line imply that the module is not aligned.

Table 6.1: Course alignment table

		The cognitive process dimension (according to Anderson <i>et al.</i> , 2001)					
Which level is each of the following:	Not included in the course	1. Remember (recognise, recall)	2. Understand (interpret, exemplify)	3. Apply (execute, implement)	4. Analyse (differentiate, organise, attribute)	5. Evaluate (check, critique)	6. Create (generate, plan, produce)
Objective							
Teaching/learning methods							
Assessment task requirements							

Source: Blumberg (2009)

The expected cognitive levels in the learning outcomes, teaching/learning activities and assessments have to be the same, and assessments should flow directly from the stated learning outcomes (Blumberg, 2009:96). It is vital that all the teaching components be aligned, from the learning outcomes to the curriculum, teaching/learning activities and the assessment.

6.4 WHY ALIGNMENT NEEDS TO CHANGE

There are several possible reasons why assessments are not aligned with the learning outcomes of a module (Elton & Johnston, 2002:27):

- Even though a programme has both process and technical aspect objectives, it might be that only the technical aspect objectives are assessed. For example, where work in a laboratory is viewed as the process and the findings or report as the technical aspect, only the technical aspects are assessed, not the process;
- In a programme with learning outcomes on skills and knowledge, only the knowledge objectives might be assessed. For example, when a student is required to write a report, communication skills are required, although only the knowledge component is assessed;
- Often, only the objectives that are more easy to assess are assessed, while those that are more difficult to assess are not assessed (refer to reliability and validity in paragraph 5.5, page 113); and
- Assessments are not linked explicitly to the learning outcomes, i.e. the student is not entirely sure which learning outcomes are being assessed.

A number of studies have shown that a more constructively aligned module encourages students to follow a deep approach to learning instead of a surface approach. Wang *et al.* (2013) compared two programmes, of which one was constructively aligned and the other not. They found that students on the constructively aligned programme were more inclined to adopt a deep approach to learning rather than the surface approach, despite predetermined individual approaches to learning.

Wang *et al.* (2013:488) propose that alignment of learning outcomes, teaching activities and assessment receive more attention in order to raise awareness of its importance so that constructive alignment can be implemented properly.

If the module is properly aligned, students have a better chance of achieving the goals of the module (Blumberg, 2009:96). Yet, not enough attention is being paid to better alignment between assessment methods and learning outcomes (Crowe *et al.*, 2008:368).

6.5 ALIGNMENT IN ACCOUNTING EDUCATION

As reported in chapter 3, there has been a change in the business environment, as well as in the role of accountants in this environment. However, research (Albrecht & Sack, 2000; Cooper *et al.*, 2005; Diamond, 2005; Ravenscroft & Williams, 2005) has shown that accounting education has not changed and that the lack of change causes a mismatch between the objectives, process, outcomes and reality of accounting education. According to Wessels and Roos (2009:148), the challenge for accounting educators is to align the curriculum, its delivery and its assessment in a way that enhances student learning. They suggest that syllabuses be developed from the objectives rather than from textbook content.

In a study by Palm and Bisman (2010) the lack of alignment between learning outcomes and assessment in introductory accounting modules was evidenced in that the development of generic skills were listed as learning outcomes, but were not assessed by assessment tasks. Moreover, some assessment tasks requiring the application of generic skills were not mentioned in the learning outcomes.

Mladenovic (2000:144) uses the example of communication skills in an accounting module. If one of the learning outcomes is to develop oral communication skills, then the teaching/learning activities and the assessment should address the development of oral communication skills. The teaching activities could present the students with the opportunity to do oral presentations, and the assessment tasks should include assessment of oral communication.

Mladenovic (2000:136) states that course objectives are less likely to be achieved if only one of the components of alignment is changed, such as only the teaching activities. Mladenovic (2000) indicates that students' perceptions of an accounting course are also more likely to be changed positively when the course is aligned as opposed to changing only one aspect of the teaching environment, such as introducing an innovative teaching technique. He explains that an aligned accounting module is more likely to cause students to develop realistic perceptions of accounting. The learning objectives for the accounting module studied by Mladenovic (2000) included non-numerical learning outcomes, such as understanding the social context and critically evaluating accounting literature. The teaching activities to accommodate these learning outcomes included requiring students to discuss these issues in small groups or class discussions during tutorials. Grades were awarded for participation in these discussions. These issues were also examinable and at least 40% of the final examination focused on non-numerical material.

In their study Scully and Kerr (2014) reported that students failed to engage in meaningful learning, but that this was not as a result of workload. The reason might be that there was not sufficient alignment between learning outcomes, teaching and assessment, or that this alignment was not communicated clearly to the students. In a similar vein Ragan and Ragan (2004:19) stressed the importance of specifying course objectives and learning outcomes in a form that can guide learning and assessment before the assessments are developed.

Byrne *et al.* (2009:162) established that accounting students did not have an intrinsic interest in learning accounting. They inferred that, if accounting educators want their students to achieve the stated learning outcomes as set by higher education institutions and the professional bodies, they have to encourage deep learning in their students by setting the ideal learning environment for deep learning. Constructive alignment of the curriculum, teaching and assessment in which the learning outcomes and the levels of understanding required by the students are stated explicitly, has to be ensured (Byrne *et al.*, 2009:162). Furthermore, the teaching methods have to support the learning outcomes, and the assessments have to show whether the students have mastered the learning outcomes (Byrne *et al.*, 2009:162). Byrne *et al.* (2009:162) add that, in such a learning environment, students will be motivated to learn for understanding.

Even though the professional bodies can be seen as specialists in setting examination papers because of the rigorous processes they go through, Herbert *et al.* (2009) identified a drift between learning outcomes, examinations and marking schemes of a professional accounting body. They questioned the ability of accounting educators to design and implement aligned programmes.

6.6 PREVIOUS RESEARCH ON ALIGNMENT

The following table provides a summary of research on the different elements of alignment:

Table 6.2: Studies on alignment

Authors	Subject area	Method	Scope	Summary of findings
Studies using the original Bloom's Taxonomy				
Momsen <i>et al.</i> (2010)	Biology	Mixed method Content analysis	77 courses over two-year period	Found little alignment between assessments and learning outcomes. Learning outcomes were written to address higher-order cognitive skills, but assessments focused on lower-order cognitive skills.
Khoza (2013)	Education	Qualitative Multimethod		Analysed the alignment of intended, implemented and attained learning outcomes and the use of Bloom's Taxonomy in developing the learning outcomes. Found that facilitators were not aware of learning outcomes and that there was a lack of alignment. Proposed that facilitators align objectives, learning outcomes, teaching and learning methods and assessments in order to do justice to their students.
Jones <i>et al.</i> (2009)	Engineering		One academic year Eight programmes	Found in some instances alignment between learning outcomes and examination questions, but in other instances little alignment.
Lucas <i>et al.</i> (2014)	Biochemistry and zoology	Quantitative Action research	Eight examination papers Two modules	Found that the cognitive levels of learning outcomes were often not aligned to those of the assessment questions.
Oliver <i>et al.</i> (2004)	Information technology	Quantitative Content analysis	Six IT courses One university	Examination questions of six modules in a single university were analysed and categorised according to the six cognitive levels of Bloom's Taxonomy. These ratings were used to calculate a difficulty metric referred to as a Bloom rating. It was found that some programming courses at a lower level of study were cognitively more demanding than some of the more advanced courses.

Authors	Subject area	Method	Scope	Summary of findings
Johnson and Fuller (2006)	Computer science	Qualitative	54 assessment First year	Found that lecturers and assessors disagreed as to the level of examination and that lecturers in general felt that most of the assessments were on the analysis level, whereas assessors felt that they were at the application level.
Zheng <i>et al.</i> (2008)	Medical courses	Mixed method	Five courses 586 questions	Found that the cognitive levels tested in traditional first-year medical courses were at too low levels of Bloom's Taxonomy.
Studies using the revised Bloom's Taxonomy				
Blumberg (2009)	Physical therapy	Qualitative	n/a	Proposed a method to determine whether courses are aligned by using the cognitive process levels of the revised taxonomy of learning objectives.
Airasian and Miranda (2002)	Parliamentary acts	Qualitative	One course	Found an overall high degree of alignment between learning outcomes, teaching activities and assessments, but with instances of misalignment. Proposed that the revised Bloom's Taxonomy be used to increase the alignment of assessment with objectives and instruction. The revised taxonomy can also be used to analyse state-wide assessments for their impact on curriculum and instruction, as well as help to align state-wide assessment with district-wide curriculum.
Yap <i>et al.</i> (2014)	Accounting	Mixed method Content analysis Student survey	12 courses 328 assessment items	Showed that the programme was aligned with regard to declared and assessed outcomes, but not with regard to the requirements of government standards or employers.

Authors	Subject area	Method	Scope	Summary of findings
Other studies on alignment				
Herbert <i>et al.</i> (2009)	Accounting	Qualitative		Found a drift between learning outcomes and assessment of a professional accounting body.
Wang <i>et al.</i> (2013)	Not mentioned	Multimethod (Qualitative and quantitative)		The study consisted of two parts: an investigation into whether constructive alignment was applied, and a pre-post survey to determine whether students' learning styles had changed as a result thereof. Interviews and document analysis were used to investigate whether two programmes were actually constructively aligned. Found that one programme was more constructively aligned than the other, also that constructive alignment caused students to adopt a deep learning approach.
Brabrand (2008)	Programming	Mixed method		Objectively concluded that students were slightly more satisfied with a post-alignment course than a pre-alignment course, also post-alignment courses incorporated more of the higher-level cognitive outcomes. On a subjective level it was reported that constructive alignment improved the quality of the course and the assignment completed by students. As lecturer, he also felt that he made more informed and conscious decisions.
Cohen (1987)	n/a	Literature review		Focused on the degree of effect relative to instructional effort and found that instructional alignment delivered large effects from small amounts of instructional effort and that a lack of excellence in teaching is due to misalignment and not ineffective teaching.

Authors	Subject area	Method	Scope	Summary of findings
Palm and Bisman (2010)	Accounting	Document review Survey questionnaire		Evidenced the lack of alignment between learning outcomes and assessment in introductory accounting modules in that the generic skills to be developed were listed as learning outcomes, but not assessed by assessment tasks. There were also assessment tasks requiring the application of generic skills which were not mentioned in the learning outcomes.
Ragan and Ragan (2004)	Corporate finance	Qualitative		Illustrated how a corporate finance topic might be structured by using course objectives and learning outcome standards and how assessment tools can be developed in order to measure whether these learning outcome standards have been achieved. The study also focused on the action verbs used in assessment as a means to determine the level of difficulty associated with the examination.
Mladenovic (2000)	Accounting	Mixed method		Showed that students' perceptions of accounting can be positively changed by constructive alignment.
Scully and Kerr (2014)	Accounting			Found that students failed to engage in meaningful learning as a result of a lack of alignment of learning outcomes, teaching activities and assessment or a lack of communication of alignment to students.

Source: Researcher

6.7 SUMMARY

The objective of this chapter was to explore the process of constructive alignment and its role in enhancing student learning. This was necessary in order to gain an understanding of what constructive alignment entails and the role that it plays in student learning.

The chapter explored the theory of constructive alignment and how it was developed. It was explained that constructive alignment entails the alignment of the whole course, in other words, learning outcomes, teaching and assessment activities have to be aligned and follow on each other. It was highlighted that learning outcomes are the drivers of constructive alignment. Although constructive alignment implies the alignment of learning outcomes, teaching activities and assessment, it was shown that the alignment of learning outcomes to assessment is the basic principle of constructive alignment. It is, therefore, imperative that the learning outcomes of a module be specified clearly and explicitly and be aligned to the assessment activities. It was also stated that the assessments have to be aligned to meaningful learning outcomes at appropriate cognitive levels.

Student learning is improved by aligning the learning outcomes, teaching activities and assessment of a module, as the alignment provides the student with a greater chance of reaching the intended learning outcomes. Alignment is likely to improve student learning, because students are more likely to reach the intended learning outcomes when the course is aligned. It was shown that a constructively aligned course encourages students to use a deep approach to learning. Yet, despite the advantages of constructive alignment, not enough attention is being paid to aligning assessments to learning outcomes.

Research has shown that a lack of alignment between learning outcomes and assessment, as well as a lack of communication regarding the alignment, causes a lack in meaningful learning. The chapter also highlighted from previous research the importance of specifying the learning outcomes before assessments are developed. A number of studies on constructive alignment aimed to analyse the alignment of assessment with learning outcomes, most of them using the revised Bloom's Taxonomy. These studies showed that, in some instances, there was alignment, while in others there was a lack of alignment. Even professional accounting bodies seemed to fail to achieve alignment between learning outcomes, examinations and marking schemes.

Research has further shown that more constructively aligned modules encourage students to follow a deep approach to learning instead of a surface approach and that they encourage the use of higher cognitive level outcomes. Implementing constructive alignment properly

could lead to improved communication between students and lecturers, increase the level of student learning and minimise the levels of anxiety for students, because they would know exactly what is expected of them. Students could also gain a better understanding of where the module fits into the programme as a whole.

With this chapter, research objective 1.5.2.4 (page 11) has been addressed. In chapter 7 the methodology applied in this study is explained.

CHAPTER 7:

RESEARCH TECHNIQUES AND PROCEDURES APPLIED IN THIS STUDY

7.1 INTRODUCTION

The overall aim of this research was to evaluate the pertinence and alignment of educational-level requirements to learning outcomes and summative assessments in CA programmes at SAICA-accredited South African universities. To this end various secondary objectives were set. A literature study was undertaken, presented in chapters 3 to 6, and examined the the training of CAs at South African universities, the process of developing learning outcomes according to educational frameworks, the application of assessments in professional training, the principles of assessment that should be adhered to, and the process of constructive alignment and its role in enhancing student learning (objectives 1.5.2.1 to 1.5.2.4, page 11).

A mixed-method approach was followed in this study (refer to paragraph 2.5, page 37). The research was performed in three phases. In the first phase a qualitative approach was followed in order to determine the roles of SAQA, SAICA, university policies and conceptual frameworks such as Bloom's Taxonomy in the delivery of CA programmes at South African universities in order to develop a framework for module development in such programmes. In the second phase a qualitative and quantitative approach was followed where quantitative values were assigned to qualitative data such as learning outcomes and assessment items. In the third phase the alignment of the learning outcomes and assessments was tested by comparing the quantitative values calculated in the second phase. With this, the following secondary objectives were addressed (paragraph 1.5.2, page 11):

- To critically analyse the process of developing learning outcomes and setting assessments for the training of CAs at South African universities;
- To provide a framework for the development of module outcomes, learning outcomes and assessments for modules within CA programmes;
- To develop an appropriate framework for applying a taxonomy of learning in the MAF discipline;
- To critically evaluate the application of the pertinent educational-level requirements by:
 - Evaluating the cognitive levels of the competencies in the SAICA competency framework by applying the developed framework for application of the taxonomy of learning in the MAF discipline;

- Evaluating the cognitive levels of the set learning outcomes by applying the developed framework for application of a taxonomy of learning in the MAF discipline; and
- Evaluating the cognitive levels of the summative assessments by applying the developed framework for application of a taxonomy of learning in the discipline of MAF;
- To critically evaluate the constructive alignment of educational-level requirements throughout the learning assessment process.

In addressing these secondary objectives, this chapter aims to explain the data collection techniques and procedures applied in this study. This represents the inner most layer of the research onion presented in Figure 2.1 (page 18). The population and sample selection are discussed, followed by a detailed discussion on how the data were processed. The chapter concludes with a discussion of the ethical considerations.

7.2 DATA COLLECTION TECHNIQUES

In order to solve a research problem, research information is required. This information, that can be in a number of forms, such as data, documents, interviews, speeches, diaries, questionnaire responses or test scores, is gathered and then analysed (Mouton, 2006:53). Newby (2014:227) contends that information should be authoritative, stable over time and reputable.

This study included the following techniques for data collection:

- Semi-structured exploratory interviews with academic staff lecturing Financial Management or Management Accounting, as well as staff from Academic Support Services of NWU;
- Content analysis of the policies and guidelines on teaching and learning of NWU; and
- Content analysis of the course documentation for Financial Management and Management Accounting modules on second-year, third-year and CTA levels of the chosen universities.

Mouton (2006:144) distinguishes between primary and secondary data. Primary data are new data, while secondary data refer to existing data. Primary data were used in this study, because new data were collected through interviews and content analysis of documentation. Although the documents already existed, the data extracted from it were new and can, therefore, be classified as primary data.

7.3 POPULATION AND SAMPLE SELECTION

The context in which this study was performed was the CA programmes at South African universities. The population consisted of 15 South African universities accredited with SAICA (refer to paragraph 3.7). These universities, and more specifically their CA programmes, formed the group about which the study attempted to make generalisations (Babbie, 2010:199).

The sampling technique used in this study was purposive sampling. With purposive sampling the researcher uses his knowledge or expertise of a group (in this case the MAF discipline in CA programmes at SAICA-accredited universities) to select a sample which is representative of the population (Berg, 2007:44). One of the limitations of this sampling technique is the lack of generalisability of the ultimate findings (Berg, 2007:44). The current study has limited inductive generalisation, because the study applies to a specific sample of modules in South African universities. The results can, however, be generalised to other accounting programmes and other professional programmes such as law or pharmacy. Furthermore, the sample was a convenience sample, as the primary unit of analysis was the MAF subject area of all SAICA-accredited universities. The rationale for choosing this type of sample was the researcher's knowledge and experience in the field of MAF, which are required in order to analyse learning outcomes and assessments of a certain discipline (Williams, 2013). This, however, makes it difficult to generalise the results to a larger population such as all modules at South African universities or even all modules within CA programmes (Mouton, 2006:118). In a similar study Swart (2010) also made use of convenience sampling in analysing the examination papers for three years, as these papers were easily accessible.

The population for the content analysis consisted of the 15 South African universities accredited with SAICA for the training of CAs (see paragraph 3.7, page 58). The sample chosen consisted of all MAF modules presented at these universities. All MAF modules at second-year, third-year and CTA level were included in the sample. The rationale for the exclusion of the first-year modules was that most universities do not offer these disciplines at first-year level in their CA programmes.

The Heads of Departments (HODs) of the CA programmes at the chosen universities were contacted by email and requested to provide the detailed learning outcomes and the summative assessments for the second-year, third-year and CTA modules in MAF in the CA programmes. These requests for permission were sent to 15 universities. Of the 15 universities, 11 responded and provided the information requested.

As different staff members were responsible for sending the information for different modules, not all of the information required for all three year groups covered by the study was received for each university. Furthermore, not all of the universities were willing to send the specific learning outcomes because, in some cases, this information had to be extracted from documents such as study guides and the universities indicated that this would be too time consuming.

In the end six universities supplied complete information (detailed learning outcomes and summative assessments) for all MAF modules offered from second year to CTA. A summary of the complete data used in this study is presented below:

Tabel 7.1: Detailed learning outcomes

	Management Accounting	Financial Management	Total (MAF)
	<i>Number of learning outcomes</i>	<i>Number of learning outcomes</i>	<i>Number of learning outcomes</i>
Second year	355	148	503
Third year	290	270	560
CTA	367	408	775
Total	1 012	826	1 838

Source: Researcher

Table 7.2: Final summative assessments

	Management Accounting	Financial Management	Total (MAF)
	<i>Number of assessment items</i>	<i>Number of assessment items</i>	<i>Number of assessment items</i>
Second year	102	66	168
Third year	73	71	144
CTA	39	67	106
Total	214	204	418

Source: Researcher

Ensuing is a detailed discussion on the methods of data collection and the rationale for the data collection for each of the collection methods indicated in paragraph 7.2.

7.4 CASE STUDY

The case study as a research strategy was explained in chapter 2 (paragraph 2.4.3, page 33). The case study approach was followed in this study in order to reach the objective of providing a framework for the development of module outcomes, learning outcomes and assessments for modules in CA programmes at South African universities (objective 1.5.2.6, page 12). In this study NWU was used as the case study in order to gain an understanding of the process of developing learning outcomes and setting assessments for the training of CAs at South African universities. One of the characteristics of a case study as research strategy is its recognisable boundaries (Henning, 2005:41). Maree (2016:83) indicates that, although a case study pertains to a “bounded entity”, the boundaries between the entity and its contextual settings may not be clear. In this study the boundaries between NWU and other higher education institutions may be blurred, as they share common features in the higher education setting. Data that cannot be linked to the case were not used in the case study, although the exception is data that can indirectly reflect the nature of the case. In the case of the NWU case study the institutional documents could be linked directly to the case, but other information gained from the literature review did indirectly reflect on NWU as a provider of higher education in South Africa.

In providing the framework for developing MAF modules at South African universities (presented in chapter 8), the following data collection and analysis techniques were employed:

- Interview with members of Academic Support Services at NWU (method explained in paragraph 7.5); and
- The analysis of the NWU institutional policies and guidelines (method explained in paragraph 7.6).

7.5 INTERVIEWS

7.5.1 Rationale for data collection

Interviews are regarded as the predominant method of collecting data in qualitative research (Babbie & Mouton, 2012:289; De Vos *et al.*, 2013:342). With this mode of data collection researchers are able to collect data from an individual or group that has the knowledge or experience sought by the researcher (De Vos *et al.*, 2013:342).

The **qualitative interview** is a conversation for which the interviewer does have a plan, but no specific or detailed set of questions that have to be asked in a certain order (Babbie & Mouton, 2012:289). Rubin and Rubin (1995:46) state that qualitative interviews are flexible and “not set in stone”.

In a **structured interview** the researcher has a script with predetermined questions in a certain order from which there is little deviation (Qu & Dumay, 2011:244). The advantages of this form of interview are that the results are usually not influenced by the personal prejudice of the researcher and the results are usually easy to analyse (Qu & Dumay, 2011:244).

The **semi-structured interview** is focused on a particular area of interest, but does allow for flexibility (De Vos *et al.*, 2013:348). With this interview technique the researcher has a set of predetermined questions, but can ask for additional information in order to answer the research questions (Qu & Dumay, 2011:246).

The **focus group interview** is an interview with a small group of people to address a topic of interest to the researcher and the interviewees (Berg, 2007:144). The researcher creates focus group discussions for a specific purpose, and large volumes of information are collected in a short period of time (Babbie & Mouton, 2012:292; De Vos *et al.*, 2013:362; Salkind, 2014:289). It is, in fact, the use of this type of group discussion to generate data that distinguishes focus groups from other forms of interviews (De Vos *et al.*, 2006:362). Focus group discussions are ideal for situations where constructs need to be validated prior to the development of more qualitative measures (Kingry *et al.*, 1990:125; Newby, 2014:289) and can be used to develop instruments (De Vos *et al.*, 2013:361). De Vos *et al.* (2013:364) opine that exploratory focus group discussions can precede quantitative procedures in order to make sense of and provide a better understanding of the results. It can also be used to provide insight into an area that the researcher did not understand previously (Salkind, 2014:290).

Although most researchers agree that a focus group should consist of between six and 12 participants (Babbie & Mouton, 2012:292; De Vos *et al.*, 2013:366; Johnson & Christensen, 2014:235), others do not provide a specific number (Salkind, 2014:289). In deciding on the size of the focus group, a major contributing factor is the extent of each participant's contribution, as well as the level of detail required from the participants (Morgan, 1997:42). In some cases only two people are included in focus group discussions. Newby (2014:365) refers to this technique as **pair interviews**. A pair interview is an interview where two people are interviewed at the same time (Newby, 2014:364). According to Newby (2014:366), pair

interviews have the potential of delivering excellent data. In selecting the interviewees for a pair interview, it is crucial that the research framework prescribe and justify the basis of the selection (Newby, 2014:365).

Focus group discussions rely on purposive sampling, and the participants of the focus group should, therefore, be selected with the purpose of the study in mind (De Vos *et al.*, 2006:365; Maree, 2012:90).

In this study two types of interviews were conducted to collect data:

- **Focus group discussion**

The researcher required a high level of detail from the participants, as well as extensive contributions on their expertise in the area of Bloom's Taxonomy. It was, therefore, decided to include only three participants, as they were the specialists in the field. The participants included two academic advisors on assessment and moderation and one academic advisor on teaching and learning. The purpose of the focus group discussion in this study was twofold:

- To gain an understanding of the process of module development and the role of the different stakeholders in this process in order to develop a framework for the development of MAF modules in CA programmes at South African universities; and
- To validate certain constructs on the application of Bloom's Taxonomy and to gather additional information in order to construct the framework for the classification of learning outcomes and assessment items in the MAF subject area.

Participants chosen for these interviews were experts on NWU teaching and learning policies, Bloom's Taxonomy and the requirements of the CHE.

- **Semi-structured interviews**

Semi-structured interviews were held with academic staff members of SAICA-accredited universities in South Africa. Three staff members of each of the six participating universities were identified based on their experience and level of teaching. In the end fifteen interviews were conducted. Three interviews were not held due to unavailability of the staff members. However, all of the participating universities were represented in the interviews.

7.5.2 Collecting the data

After analysing and structuring the information from the literature review on the application of Bloom's Taxonomy to the MAF subject area, the researcher conducted an interview with

three staff members from NWU Academic Support Services. NWU was used as a case study in order to create a framework for the development of MAF modules in CA programmes at South African universities and, therefore, the interview with Academic Support Services was only held with NWU staff members. The interview followed an unstructured, exploratory approach in which the researcher asked the participants open-ended questions. The purpose of the interview was to gain insight into the processes involved in developing module outcomes and learning outcomes, as well as the roles of SAQA and SAICA in developing these outcomes for CA programmes. Furthermore, questions were asked in order to gain an understanding of the cognitive levels of Bloom's Taxonomy and how these levels should be interpreted for the MAF discipline. Certain MAF topics were chosen as a basis for these discussions.

Semi-structured interviews were also held with academics within the MAF discipline at the participating universities. The academics were selected on the basis of their having taught Financial Management and/or Management Accounting regularly. This is in line with the approach followed by Yap *et al.* (2014). The teaching experience of the academics ranged from two to 25 years, and their appointments varied from senior lecturer to full professor. The interviews averaged 30 minutes per interview. Interviews were recorded with the permission of the interviewees.

The following table presents a summary of the interviewees from the different universities. Pseudonyms are used to protect the anonymity of the universities and the participants.

Table 7.3: Summary of interviews

University	Number of interviews	Codes for participants
A	3	A1, A2, A3
B	2	B1, B2
C	3	C1, C2
D	3	D1, D2, D3
E	3	E1, E2, E3
F	1	F1
Total	15	

Source: Researcher

7.5.3 Analysing the data

The interviews were recorded and transcribed by the researcher, as this assisted the researcher in gaining an initial understanding of the data (Henning, 2005:76). Transcription was done within a week of the interviews (Henning, 2005:76). Afrikaans interviews were carefully translated into English, after which it was independently reviewed to ensure accurate translation. The transcribed text was reviewed to ensure completeness and to identify any possible errors (Henning, 2005:80).

After this the transcribed text was coded to identify the meaningful units. Coding is the process of analysing the data and organising the data in meaningful units (Maree, 2016:116). Maree (2016:116) defines a unit as a “group of words” that provide meaningful information to the researcher. The coding process enables the researcher to easily retrieve all the data associated with a particular theme or idea (Maree, 2016:116). A master list of all the themes was developed and applied to the transcribed data from the interviews. The transcriptions of the interview were then analysed with a computer-assisted qualitative data analysis software (CAQDAS) tool, ATLAS.ti (version 7.1.4). ATLAS.ti is one of the most used code-based theory-building packages (Babbie & Mouton, 2012:509) which assist researchers in analysing text and interpreting codes (Henning, 2005:126).

7.6 CONTENT ANALYSIS

The rationale for using content analysis for the detailed analysis of the learning outcomes and assessment items was discussed in chapter 2 (paragraph 2.4.9, page 37). The following documentation was requested for every MAF module (at second-year, third-year and CTA level) offered by the targeted universities:

- Module outcomes for every module;
- Detailed learning outcomes for the study units within every module; and
- The final summative assessments and solutions for the above modules for a specific year.

In addition to the documentation provided by the universities, the following documents were also analysed:

- The institutional policies and guidelines of NWU; and
- The competency framework of SAICA (version 9).

7.6.1 Rationale for data collection

Although this type of data collection does not necessarily provide conclusive evidence regarding the level of assessment at South African universities, these types of course documentation provide important information to the various stakeholders of this particular degree programme regarding what is taught, how it is taught and what is expected of students (Momsen *et al.*, 2010:436; Palm & Bisman, 2010:185; Williams, 2013:24). As mentioned in chapter 3 (paragraph 3.7, page 58), SAICA requires as part of its accreditation reviews that universities present, inter alia, detailed module outlines, including learning outcomes and assessments. Based on this, the data collected and analysed in this study do provide a means of examining the cognitive levels of learning and the degree of constructive alignment in MAF modules. Momsen *et al.* (2010:436) agree that module outcomes and learning outcomes are regarded as being suitable evidence of what universities expect their students to know and be able to do. Research tends to focus on the outputs of degree programmes; therefore, Williams (2013:14) suggests that it might be worthwhile to put effort into the inputs of degree programmes.

Summative assessments are seen to be indicative of how universities assess students' achievements of the learning outcomes (Momsen *et al.*, 2010:436). Only high-stakes assessments (final summative examinations) were requested for this study. This is in line with the approach followed by Momsen *et al.* (2010), Thompson *et al.* (2008) and Swart (2010). The assessments of all universities for year levels 2, 3 and CTA were requested for the same single academic year. In order to ensure complete confidentiality, the specific year is not mentioned. The assessments and learning outcomes were, however, recent and had bearing on an academic year after universities had implemented the new competency framework of SAICA. Other authors who analysed the assessments of a single academic year include Momsen *et al.* (2013), Oliver *et al.* (2004), Jones *et al.* (2009) and Thompson *et al.* (2008). Only the first opportunity summative examinations of a specific year of each of the universities were analysed. The reason for this is that not all universities supplied the assessments for both opportunities. Therefore, to be consistent, only the first opportunities were used.

7.6.2 Collecting the data

The HODs of the CA programmes at the chosen universities were contacted by email and requested to provide the module outcomes, detailed learning outcomes and the summative assessments for the second-year, third-year and CTA MAF modules in their programmes. A letter explaining the purpose of the study and guaranteeing confidentiality accompanied the email (Appendix C, page 367). Follow-up emails were sent to the HODs who had not

responded to the initial email. Of the 15 universities, 11 responded, but only six universities provided complete information (detailed learning outcomes and summative assessments) (paragraph 7.3).

7.6.3 Analysing the data

Berg (2007:46) warns against reducing qualitative data to some sort of numerical representation in order to analyse the data quantitatively, as the research can then no longer be categorised as qualitative research. Qualitative data in educational research have, however, been quantified in various studies, for instance using Likert scales to quantify the degree of agreement on a scale of, say, 1 to 5 (Brabrand & Dahl, 2008; Oppenheim, 1992; Robson, 2002). Quantifying the cognitive levels of learning has also been done by various authors using Bloom's Taxonomy (Lakshmi, 2013; Momsen *et al.*, 2010; Oliver *et al.*, 2004; Swart, 2010; Thompson *et al.*, 2008; Williams, 2013; Yap *et al.*, 2014) or the SOLO Taxonomy (Brabrand & Dahl, 2008; Williams, 2013).

Data usually require some ordering or processing before being analysed (Berg, 2007:46). Before attempting the processing of data in this study, the researcher ordered the data (learning outcomes and summative assessments) per university according to discipline (Management Accounting and Financial Management) and year group (second year, third year and CTA). Each university was randomly assigned a letter such as A, B or C in order to ensure complete confidentiality.

Data collection and processing involved four rounds of document review: 1) analysis of the cognitive level of the learning outcomes in the SAICA competency framework, 2) analysis of the cognitive level of learning outcomes, 3) analysis of the cognitive level of summative assessments and 4) evaluation of the alignment of assessments to learning outcomes. In order to perform data analysis, a framework for analysis is required. Babbie and Mouton (2012:388) argue that content analysis is, in essence, a coding operation whereby data are coded according to a conceptual framework. As discussed in chapter 4, the taxonomies of learning lend themselves towards the development and analysis of learning outcomes and assessments (refer to paragraph 4.3.1, page 78) and could, therefore, be used as a framework for coding learning outcomes and assessments. In previous studies where the cognitive level of learning outcomes and assessments were analysed researchers applied Bloom's Taxonomy (Momsen *et al.*, 2010; Nayef *et al.*, 2013; Oliver *et al.*, 2004; Swart, 2010), the revised Bloom's Taxonomy (Airasian & Miranda, 2002; Forehand, 2005; Lakshmi,

2013; Thompson *et al.*, 2008; Williams, 2013; Yap *et al.*, 2014) or the SOLO Taxonomy (Brabrand & Dahl, 2008; Williams, 2013) as frameworks for coding.

Williams (2013) analysed learning outcomes based on both the SOLO Taxonomy and the revised Bloom's Taxonomy and found that, although there were slight differences in the average ratings, the overall result was the same. Oliver *et al.* (2004:227) explain that Bloom's Taxonomy is a mature technique for analysing the cognitive depth of learning outcomes or assessments and was developed specifically for use in the education field. According to Nayef *et al.* (2013:173), Bloom's Taxonomy is more effective than the other methods in determining the level at which learning outcomes are written. However, Forehand (2005) states that, although educators know and feel comfortable with the original Bloom's Taxonomy, the revised Bloom's Taxonomy is "new and improved".

Applying the revised Bloom's Taxonomy in analysing the level of learning outcomes and assessments would imply that a scale of 1 to 24 has to be used, given that the revised Bloom's Taxonomy contains 24 cells, as indicated in Table 4.2 (page 89). Thompson *et al.* (2008:156) based the categorisation of questions on the two-dimensional matrix of the revised taxonomy. Yet, they found it difficult to formally categorise questions within the cognitive dimension and state that it was easier to categorise questions at the category level than at the subcategory level within the cognitive dimension. In the end, they presented the findings of only the categories regarding the cognitive dimension, and focused on the categories and not the subcategories (as set out in Appendix B on page 364).

Williams (2013:18) mentions that the knowledge level of the revised taxonomy is about the depth of knowledge in a module. He further argues that learning outcomes are about the expected behaviour of a student and, therefore, pertains to the cognitive skills rather than the subject content. Cognitive skills in the subject area of finance is important as they "recognise complexity, the use of multiple solutions and holistic responses" (Lakshmi, 2013:239). Based on this, he agrees with Thompson *et al.* (2008) that an adjusted scale, based solely on the cognitive level, should be used. This means that the outcomes will be categorised from level 1 (remember) to level 6 (create).

In order to determine the cognitive complexity of the MAF modules offered by the universities, the revised Bloom's Taxonomy was used to code the learning outcomes provided by the universities. This is in line with the studies of Lakshmi (2013), Williams (2013), Dunham *et al.* (2015), Thompson *et al.* (2008) and Yap *et al.* (2014). Only the

cognitive dimension of the revised Bloom's Taxonomy was used, resulting in a scoring range of 1 to 6 (Williams, 2013:18).

Coding scheme

After all the data were collected from the respective universities, the data had to be categorised or classified. This is referred to as coding (Babbie, 2010:400). The aim of coding the data is to identify certain patterns which can point to understandings of learning outcomes and assessment (Babbie, 2010:400). Before coding can be done the conceptual framework has to be refined and methods have to be developed with which the data can be observed in relation to the chosen framework (Babbie & Mouton, 2012:388). To this end a coding scheme was developed for data classification and evaluation.

Based on the extensive literature study on Bloom's Taxonomy, the interpretation thereof in accounting and other disciplines, and the interview with Academic Support Services, a coding scheme for classifying and evaluating the learning outcomes and assessment questions in MAF was developed. The coding scheme represents the six levels of the revised Bloom's Taxonomy and is presented in the form of a framework that is presented in chapter 9 (refer to paragraph 9.2.4, page 212). In the analysis of the cognitive levels of the learning outcomes and summative assessments, the verbs were the focal point of the examination (Jones *et al.*, 2009:3). A verb code was, therefore, developed from the literature and interviews with Academic Support Services as an added framework for categorising the learning outcomes and questions in the summative examinations according to the cognitive levels (1 to 6) of the revised Bloom's Taxonomy. The coding categories were labelled as: 1) remember, 2) understand, 3) apply, 4) analyse, 5) evaluate and 6) create. A table was created that includes the levels, typical requirements of each level and the verbs that are typically used for the specific level in the MAF discipline. This framework is presented in chapter 9 (Table 9.2, page 205).

7.6.3.1 *Analysing the learning outcomes*

In order to quantify the data, data processing has to be possible (Babbie & Mouton, 2012:390). In this case the verbs used in the learning outcomes were counted and, therefore, the coding was numerical. All the specific learning outcomes of each module collected from the universities were analysed in order to calculate the average cognitive level using the revised Bloom's Taxonomy. Every learning outcome in each of the modules was analysed and ranked according to the cognitive levels (1 to 6) of the revised Bloom's Taxonomy. An average cognitive level was calculated for each of the modules analysed by using Microsoft

Excel. This allowed for an average cognitive level to be calculated per year group and per discipline (Management Accounting and Financial Management).

Similar to the approach of Brabrand and Dahl (2008), the data were analysed in three ways: 1) An average cognitive level was calculated based on the revised Bloom's Taxonomy, 2) the distribution between cognitive level categories (high, intermediate and low) were determined and distributions of the Bloom levels were compared for the year levels and for Management Accounting and Financial Management, and 3) the frequency of the verbs used in the learning outcomes were determined.

The average cognitive levels were determined by calculating the frequency of verbs used in the learning outcomes. A similar approach was followed by Brabrand and Dahl (2008), Williams (2013) and Momsen *et al.* (2010). It was necessary to calculate an average score, as the number of learning outcomes per module differed. Also, an average score would reveal the general intent of each module with regard to cognitive levels (Williams, 2013:19).

Some learning outcomes contain more than one verb, and Brabrand and Dahl (2008) suggest that a double-weighted average be calculated then. For example, if a single learning outcome contained two verbs on level 2 and 4 respectively, the average for that learning outcome would be 3 $((2+4)/2)$. Williams (2013:18) proposes the following solutions for categorising outcomes that contain more than one verb:

- The single statement could be changed into multiple outcomes. The problem with this approach is that an outcome with single intent now becomes more than one outcome, which has an effect on the scores. The value of the learning outcome might become inflated.
- The second alternative is to compute an average of the levels of the verbs in the single learning outcome. The learning outcome will, therefore, have a single value within the range of levels being applied. In following this approach the problem of overstating the value of a learning outcome is overcome. This approach was followed by Brabrand and Dahl (2008).
- The third approach is to use the level of the verb that is the highest. For example, if a learning outcome contains two verbs at level 2 and 4 respectively, only the highest value (which is 4) will be recognised. Williams (2013) warns that this approach could err on the side of generosity.

In this study a compound average was calculated for every learning outcome that contained more than one verb. An example of this is provided below:

The following actual learning outcomes were extracted for one of the universities as listed for one of the topics in Financial Management. Only four were chosen to serve as an example:

Learning outcomes for capital budgeting:	
1.	Distinguish (level 2) between different types of investment projects
2.	Explain (level 2) and apply (level 3) the techniques that are used to evaluate capital projects
3.	Determine (level 4) the relevant cash flow that should be included in the analysis
4.	Rank (level 4) and evaluate (level 5) projects under conditions of capital rationing

The average Bloom rating for these learning outcomes would be calculated as follows:

$$= [2 + ((2+3)/2) + 4 + ((4+5)/2)] / 4$$

$$= 3.25$$

In applying the above method, every learning outcome weighs the same and every verb competency within a learning outcome also weighs the same (Brabrand & Dahl, 2008:8).

Williams (2013) grouped the scores of different modules according to year levels in order to determine whether there were differences at year level. This was followed by calculating a score for the degree programme as a whole. In line with this, an average cognitive level (Bloom rating) was calculated per year level per discipline. In order to gain a deeper understanding of the level of learning outcomes, the distribution of Bloom levels per year group per discipline was also determined in this study. Brabrand and Dahl (2008) carried out a similar analysis.

No framework can be completely conclusive for categorising learning outcomes, and some problematic outcomes were encountered. In some instances there was uncertainty regarding the proper classification of a learning outcome. All of these learning outcomes were documented and discussions were held with senior academic staff with experience in teaching MAF, as well as with staff members from Academic Support Services of NWU. After these discussions agreement was reached on the level of the learning outcomes and learning outcomes were classified accordingly.

The exact same method was followed in analysing the learning outcomes in the SAICA competency framework.

7.6.3.2 ***Analysing the questions in the summative examinations***

Each question in every summative examination paper included in the sample was analysed and classified as level 1 to 6 according to the revised Bloom's Taxonomy. The classification was based on the verb code and the framework for applying the revised Bloom's Taxonomy in the MAF discipline (Table 9.2, page 205 and Table 9.8, page 213). The nature of the questions in the examination papers differed and included multiple-choice questions, true-or-false questions, calculations and questions requiring long or short answers.

Every question in each examination paper of each module was analysed and ranked according to the cognitive levels 1 to 6 of the revised Bloom's Taxonomy. Where a question had more than one item in the required section, every item in the required was classified separately. Momsen *et al.* (2010:437) note that questions requiring higher-order skills often had more marks allocated to them than questions at the lower cognitive levels (remember and understand). They, therefore, calculated a weighted average score for each assessment item and used these scores to determine a single score for each examination paper. Oliver *et al.* (2004) also analysed each part of the question separately. This thesis followed the approach by Momsen *et al.* (2010) in that an average score was calculated for each assessment item.

Dunham *et al.* (2015) point out the need to refine guidelines with regard to questions where more than one cognitive level is involved. In their study they used the example in statistics where a student had to choose the appropriate test (level 4), perform the test (level 3) and report on a conclusion (level 4). They noted that it could be artificial to classify a question entirely at the highest level of the taxonomy and suggested that the question be broken down into subtasks where a clear distinction was possible. Crowe *et al.* (2008) and Tallman *et al.* (2016), however, ranked the questions that they analysed at the highest level of the revised Bloom's Taxonomy. Questions in MAF examinations often require more than one cognitive level to complete the task. For this reason the questions in the summative examinations were broken up into subtasks and weighed accordingly where a clear distinction was possible. In order to do this, the suggested solutions of the examination papers were scrutinised to determine the number of marks allocated to the different levels of cognitive skills. The suggested solutions were also used to contextualise questions where the verb did not clearly describe the level of cognitive skills. This was also suggested by Lucas *et al.* (2014) in categorising the questions in biology and zoology examinations.

Furthermore, each question analysed in this thesis comprised a certain weighting with regard to the paper as a whole. The cognitive levels that were identified were recorded with regard

to the marks allocated to the individual questions. The weights of the questions in the assessment were calculated based on the marks that the questions contributed towards the total marks of the paper (Oliver *et al.*, 2004). The total marks for each cognitive level were summed and scaled with respect to the total marks for the examination paper (Jones *et al.*, 2009; Lucas *et al.*, 2014; Oliver *et al.*, 2004; Swart, 2010) and the score was presented as a percentage of the total marks in the examination paper (Lucas *et al.*, 2014; Swart, 2010) by using Microsoft Excel. Marks allocated to communication were not included. This process is described by the following formula:

$$Bloom\ rating = \frac{\sum_{i=1}^n RiWi}{100}$$

Where:

R = Bloom classification from 1 to 6 of each assessment item

W = Weight of the item

n = Number of assessment items in a module

The level of each question was determined by analysing the action verb in the required part of each question while taking into account the information presented in the question. The framework developed for this purpose (paragraph 9.2.4, page 212) was applied in doing this.

The study focused on MAF because the researcher has been involved in teaching in this subject area for 16 years and has insight into the context of the examination papers in question (Thompson *et al.*, 2008). According to Thompson *et al.* (2008), the person categorising the assessment according to cognitive levels has to have an intimate knowledge of how a module is taught. Thompson *et al.* (2008:156) claim that uncertainty regarding the classification of a question could be cleared up by understanding the teaching context of the task in question. For this reason, the person analysing the questions has to have in-depth knowledge of the module. As with the classification of the learning outcomes, where there was uncertainty regarding the classification of a certain question, discussions were held with academics involved in teaching the particular module. Academics involved in teaching a module are deemed to be able to provide the teaching context for the particular assessment task (Thompson *et al.*, 2008:156).

Statistical analysis

Both the results of the cognitive levels of the learning outcomes and the results of the cognitive levels of the assessment items were imported into the statistical software package

IBM SPSS in order to obtain information to further describe the results obtained from the data.

7.7 VALIDITY AND RELIABILITY

According to Babbie and Mouton (2012:388), researchers often have to choose between depth and specificity of understanding, which represents the choice between validity and reliability. Qualitative researchers often choose depth and base their research on a wide range of information. However, this poses the risk of another researcher reaching a different conclusion regarding the same information.

Bloom's Taxonomy and the revised Bloom's Taxonomy has been deemed to be a valid framework in many previous studies (Airasian & Miranda, 2002; Forehand, 2005; Lakshmi, 2013; Momsen *et al.*, 2010; Nayef *et al.*, 2013; Oliver *et al.*, 2004; Swart, 2010; Thompson *et al.*, 2008; Williams, 2013; Yap *et al.*, 2014). The researcher in the current study derived the coding framework directly from Bloom's Taxonomy and the revised Bloom's Taxonomy. This framework was based on a detailed literature study and an interview with staff members of NWU Academic Support Services who were deemed to be experts on the application of Bloom's Taxonomy. The framework was also presented to three experts to examine the definitions and explanations provided by the researcher. There was consensus among these experts that the framework was appropriate for this study.

Anderson *et al.* (2001) warn that codes become subjective, because skills can be subject specific. This type of analysis requires academic judgement to categorise the different learning outcomes according to Bloom's Taxonomy (Oliver *et al.*, 2004:228). In previous studies, the level of subjectivity that could be experienced if a single researcher performed the evaluation was negated by using a second researcher to perform the same analysis (Lakshmi, 2013; Momsen *et al.*, 2010; Oliver *et al.*, 2004:228; Thompson *et al.*, 2008; Yap *et al.*, 2014).

However, in most previous studies where more than one rater was used they tended to agree on the appropriate cognitive level (Lakshmi, 2013; Momsen *et al.*, 2010; Thompson *et al.*, 2008; Yap *et al.*, 2014). Momsen *et al.* (2010:437) reported "substantial agreement" between raters for both learning outcomes and assessment questions. Williams (2013) concurs that the classification of learning outcomes is subjective, but argues that a repetition by other researchers was not necessary in his study because of the confidence in the professionalism of the people making the judgement regarding the levels. He compares the

situation to the marking of students' papers. Different examiners might arrive at different marks, but overall the result should be the same.

The person conducting the analysis should have in-depth knowledge of the module as a whole (Thompson *et al.*, 2008:156). This is in accordance with the advice of Anderson *et al.* (2001) and Johnson and Fuller (2006). Thompson *et al.* (2008:155) state that an intimate knowledge of a discipline is required in order to categorise assessments into the categories of Bloom's Taxonomy.

Based on the above discussion it is acceptable for a researcher with experience in the discipline to perform the analysis. The researcher has 16 years' teaching experience in the MAF subject area and her appointment is as associate professor. However, as codes can be subjective (Anderson *et al.*, 2001) and because of the academic judgement required (Oliver *et al.*, 2004:228), the contentious learning outcomes and assessment questions were discussed with other academics with extensive teaching experience in the discipline and an agreement was reached on the cognitive level of the learning outcomes and questions. They were also discussed with non-accounting staff members of Academic Support Services of NWU with extensive knowledge of the revised Bloom's Taxonomy. This is in line with the study of Yap *et al.* (2014).

Reliability depends heavily on the accuracy of the data that are analysed (Babbie & Mouton, 2012:397). In this study the actual learning outcomes and assessment questions were obtained from the universities and are, therefore, deemed to be accurate.

7.8 ETHICAL CONSIDERATIONS

As discussed in chapter 2 (paragraph 2.8, page 42), the researcher has to ensure that no physical or psychological harm is done to any of the participants in the study. Furthermore, the researcher should provide assurance to all participants that all information will be treated completely confidential and has to be completely honest in reporting on results, even if the results do not support the position or preference of the researcher (Sesay, 2011:30).

The following steps were taken in this study to ensure compliance with the above:

- The necessary permission was obtained from the HODs of all universities participating in this study.
- The privacy of every university was respected and no university was specifically identified in the presentation of the results. In further ensuring anonymity the results were not presented per university.

- Although it does not rule out the possibility of identification completely, anonymity was ensured by the use of pseudonyms for participants. The list was kept in a safe place to which only the researcher had access. Anonymity was further ensured by not identifying the universities on which the data were actually processed and reported.
- The confidentiality of the documents provided by the universities was maintained at all times and the universities were ensured that all information would be kept confidential upon request of the information.
- The participants who were interviewed were informed before the interview commenced that the interviews would be recorded.

7.9 SUMMARY

Chapter 2 set out the underlying philosophical assumptions of the study as well as the research design followed. This chapter served to explain the research data collection and analysis techniques adopted in this study in order to address the research objectives as stated in chapter 1. Data were gathered by means of interviews and content analysis. These methods were motivated and explained in detail. A detailed discussion of how the data were analysed was also provided. The validity and reliability of the study were explained and the chapter concluded with addressing the ethical considerations of the study.

This study involved the following three phases of research:

- Phase 1: Developing a framework for the development of MAF modules in CA programmes at South African universities taking into account the roles of SAQA, SAICA, university policies and conceptual frameworks such as Bloom's Taxonomy;
- Phase 2: Evaluating the cognitive levels of learning outcomes and assessment items of MAF modules in CA programme at South African universities; and
- Phase 3: Evaluating the alignment of the learning outcomes and assessments by comparing the quantitative values determined in the second phase.

The following table provides a summary of the phases in this study and the methods and techniques employed:

Table 7.4: Methods and techniques in this study

Phase	Strategy	Method	Technique and procedure	Map to results
1	Case study Content analysis	Qualitative	Interview Document analysis	Chapter 8
2	Content analysis	Mixed method	Document analysis	Chapter 9
3	Content analysis	Mixed method	Document analysis	Chapter 10

Source: Researcher

The next three chapters (chapters 8, 9 and 10) present the results of the three phases of research.

CHAPTER 8:

FRAMEWORK FOR DEVELOPING LEARNING OUTCOMES AND ASSESSMENTS IN CA PROGRAMMES IN SOUTH AFRICA

8.1 INTRODUCTION

The role of SAQA and SAICA in the CA programmes at universities was contextualised from the literature in chapter 3. It was put forward that SAICA, SAQA and the universities themselves are the major role players in university programmes. The importance of aligning module outcomes, learning outcomes and assessments in these modules was highlighted throughout chapters 3 to 6. These chapters addressed the motivation for alignment and the specific elements involved in the process of alignment. This chapter attempts to propose a framework for the development of modules in order to achieve alignment in CA programmes at South African universities by using the NWU as a case study. In doing so, objectives 1.5.2.5 and 1.5.2.6 (page 12) are addressed.

The framework proposed in this chapter will be based on the requirements of SAQA, the competency framework of SAICA, the literature review in chapters 3 to 6, institutional policies and the findings of the interviews held with staff from NWU Academic Support Services and academic staff members lecturing MAF modules at South African universities.

The elements of alignment addressed in this study were:

- module outcomes;
- specific learning outcomes; and
- assessments.

The following diagram by Moon (2002:16) was presented in chapter 4 as a map for module development. This diagram is used as a starting point for this chapter and the subsequent framework for the development of module outcomes, learning outcomes and assessments in CA programmes at South African universities.

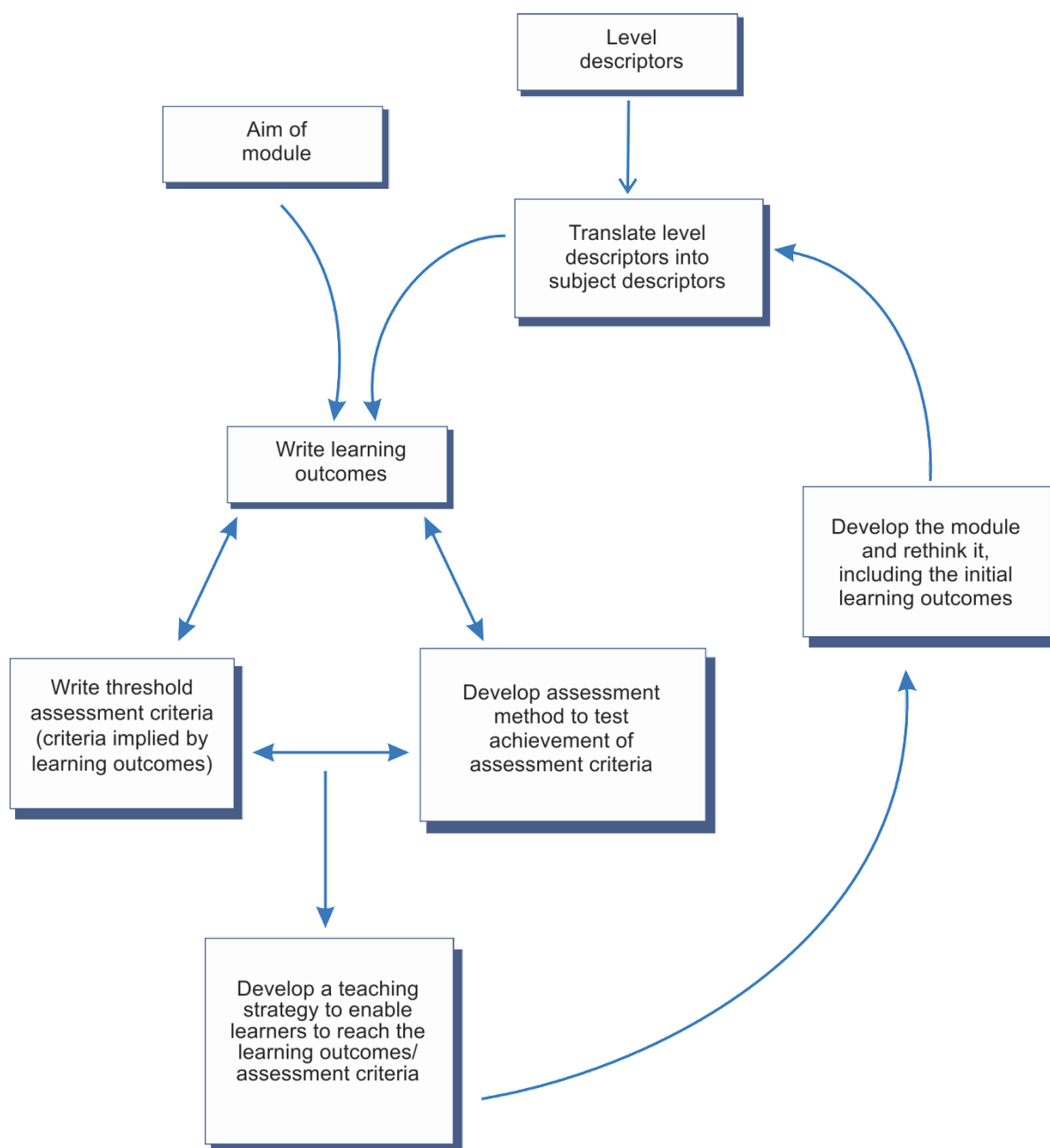


Figure 8.1: Basic map of module development

Source: Moon (2002:16)

8.2 ROLE PLAYERS IN DEVELOPING OUTCOMES AND ASSESSMENTS

Accounting programmes are influenced internally by institutional documents and externally by stakeholders such as professional accounting bodies like SAICA (paragraph 3.7, page 58). Professional accounting bodies provide their members with competency guidelines, such as the competency framework document of SAICA. Another party that has a direct interest in CA programmes at universities is the CHE through the HEQC. The role and interest of these parties were explained in chapter 3 (paragraph 3.7, page 58). It can,

therefore, be said that in CA programmes at South African universities, the development of modules is influenced by the following role players:

- SAQA;
- the professional body, SAICA; and
- university policies.

The role of each of the above in CA programmes at South African universities, as established from the literature review, is discussed in the following sections.

8.2.1 SAQA

Graduates of higher education institutions in South Africa are expected to meet the standards set by the HEQF and SAQA. Therefore, they need to have the skills and attributes as set out in the NQF level descriptors provided by SAQA (SAQA, 2012). In the literature study it was shown that SAQA provides ten generic level descriptors (paragraph 4.3.1, page 78). The level descriptors provide general guidance for the development of module outcomes and do not prescribe curricular content (paragraph 3.7, page 58). Level descriptors for each of the ten levels of the NQF describe the level of achievement that is expected of a student at the given level of study and, thus, serve as the basis for developing the learning outcomes and assessment criteria (paragraph 3.3.2, page 51). The level descriptors are arranged in ascending order from 1 to 10 and become progressively more challenging as the student progresses through the levels (paragraph 3.3.2, page 51). In order for a module to be recognised in South-Africa, it has to be guided by at least one of these outcomes.

It can be concluded that the main role of the SAQA NQF level descriptors is to provide guidance on the development of learning outcomes and assessment criteria and that they specifically inform the level at which these outcomes and assessment criteria should be. However, the SAQA NQF level descriptors do not prescribe curricular content, but provide general guidance instead. For this reason, it can be said that the level descriptors inform the module outcomes rather than the specific learning outcomes.

8.2.2 Professional body: SAICA

In the literature review it was established that SAICA is widely recognised as the foremost professional body for CAs in South Africa (paragraph 3.6, page 56). It was shown that quality assurance in South Africa is delegated to SAICA by SAQA and, therefore, quality is assured by accreditation with SAICA. SAICA accredits the training programmes of South African universities if the programme meet their accreditation criteria. Accreditation with SAICA

implies that the training is of an adequate standard with regard to teaching and learning (paragraph 3.7, page 58). In an attempt to meet SAICA accreditation expectations, universities might base their outcomes and assessments on the competency framework of SAICA which could, in turn, mean a violation of government frameworks (paragraph 3.7, page 58).

SAICA follows a competency-based approach to learning and has, to this end, published their competency framework setting out the competencies expected of a prospective CA upon entry into the profession. The competency framework provides guidance to universities regarding the preparation of students for SAICA's first standard setting examination.

It can, therefore, be concluded that, in order to be accredited with SAICA, universities could base their outcomes and assessment on the competency framework of SAICA instead of on government frameworks such as the NQF level descriptors.

8.2.3 University policies and guidelines

In chapter 3 it was stated that the planning and development of a programme are influenced externally by the professional bodies and internally by the institutional documents of the universities (paragraph 3.7, page 58). It is important that the perspectives of both the internal and external stakeholders be taken into account. It was also mentioned that the issue of responsibility for quality in professional programmes can be contentious. As mentioned earlier, quality assurance in CA programmes is said to be delegated to SAICA. However, it remains that university policies and procedure documents should be taken into account when developing modules in these programmes.

8.3 CASE STUDY: DEVELOPING MODULE OUTCOMES, LEARNING OUTCOMES AND ASSESSMENTS FOR THE CA PROGRAMME AT NWU

In chapter 4 the process of module development in general was addressed (paragraph 4.2, page 67). This was done based on a basic map as provided by Moon (2002) (Figure 8.1 in the introduction to this chapter). In the following section this process of module development is adapted for the CA programme at NWU, taking into account the different role players mentioned above. The results presented here are based on the literature study in chapters 3 to 6, analysis of institutional documents and interviews with members of NWU academic support services.

The following documents were analysed in order to determine the process of module development at NWU. These documents were chosen based on the recommendations of members of NWU academic support services:

- Teaching and Learning Policy of the NWU (NWU, 2011c);
- Assessment and Moderation Policy (NWU, 2011a);
- Manual for the Writing of Study Guides (NWU, 2011b); and
- Manual for the Writing of Interactive Study Guides for Contact or Open Distance Learning (NWU, 2013).

The NWU Teaching and Learning Policy states clearly that all the teaching and learning practices at the NWU should support the vision, values, mission and specific goals of the university (NWU, 2011c:1). These goals or aims should be in line with the mission of the university and with the goals as set out by the accounting bodies or institutions (Gainen & Locatelli, 1995:43). All the NWU qualifications are referred to as programmes which consist of a number of modules (NWU, 2011c:1). The CA programme is one such programme.

Teaching, learning and assessment at the NWU are in line with the national outcomes-based approach and are implemented in all undergraduate and postgraduate programmes (NWU, 2011c:1). NWU students should know exactly what is expected of them with regard to how they should learn and how they should demonstrate that learning in assessments (NWU, 2013:7).

8.3.1 The aim or purpose of a module

Although the map presented by Moon (2002) starts with the aim of the module, the role that a module plays within reaching the stated programme goal has to be determined (NWU, 2013:8). The following is an extract from the Yearbook of the Faculty of Economic and Management Sciences of NWU and states the programme purpose and goal for the CA programme in this faculty:

Purpose:

The purpose of a BCom Hons in Chartered Accountancy degree is to equip students with a broad range of knowledge that together with skills, attitudes and professional behaviour are able to deliver a specified professional service as expected from a graduate entering the chartered accountancy profession. The programme aims to enhance the student's understanding of the theories, research methodologies, methods and techniques relevant to the accountancy field; and an understanding of how to apply such knowledge in a particular context, including specific competencies in the field of Strategy, Risk Management and Governance, Accounting and External Reporting, Auditing and Assurance, Financial Management, Management Decision Making and Control and Taxation.

A BCom Hons in Chartered Accountancy degree aims to provide South Africa with graduates who are competent in the field of accountancy with the capacity to understand and function in the economic and business environment as professional accountants.

Programme outcomes:

After successful completion of a BCom Hons in Chartered Accountancy a graduate will be able to demonstrate the broad range of knowledge that together with skills, attitudes and behaviour account for the ability to deliver a specified professional service as expected from a graduate entering the chartered accountancy profession, including:

- an understanding of:
 - o the theories, research methodologies, methods and techniques relevant to the accountancy field that include the application of specific competencies in the field of Strategy, Risk Management and Governance, Accounting and External Reporting, Auditing and Assurance, Financial Management, Management Decision Making and Control and Taxation;
 - o the complexities and uncertainties of selecting, applying or transferring appropriate theory, standards, standard procedures, processes or techniques to unfamiliar problems in accountancy;
- an ability to interrogate multiple sources of knowledge in the accountancy field and to evaluate knowledge and processes of knowledge production, including the use of information technology to identify, analyse and address complex or abstract problems drawing systematically on the body of knowledge and methods appropriate to accountancy in order to develop creative responses to problems and issues;
- effectively, innovatively and responsibly apply the pervasive qualities and skills required as Chartered Accountant, including ethics and professionalism, personal attributes (e.g. self-management, life-long learning, leadership and teamwork) and professional skills (e.g. effective communication and utilisation of information technology).

Source: NWU (2016)

The above sets out the general competencies expected of a student who has completed the BCom Hons degree at NWU. It is important that the aim and outcomes of the modules within this programme align with the programme goal and objectives. The programme aim and objectives set out the general direction or orientation of the CA programme. Every module in the CA programme at NWU has to have an aim and outcomes that indicate the role that the module plays within reaching the purpose and outcomes of the programme as set out above.

It has been shown that clarification of the aim of a module and translating it into learning outcomes are essential steps before assessments are prepared. It was also established that the aim of the module has to be in line with the mission of the university and the goals of the professional bodies (paragraph 4.2.1, page 69). The importance of the aim of the module was also confirmed in the interview with academic support services:

“The aim of the module will also determine on what level the module will be and what the descriptors are.”

It can, therefore, be concluded that the aim of the module should be included in the map of module development of all modules at the NWU.

8.3.2 Module outcomes

Literature review

The following was highlighted from the literature regarding the different roles of module outcomes and learning outcomes:

- Module outcomes and learning outcomes form the basis for the teaching and learning process in any module.
- In South Africa there is a distinction between module outcomes and learning outcomes. Module outcomes are overall course outcomes that are guided by SAQA, institutional guidelines, accrediting bodies, etc., and these outcomes provide the foundation for the design of the curriculum. Module outcomes have to be supported by learning outcomes. Learning outcomes are more specific and focus on the content of the module.
- An understanding of module outcomes, learning outcomes and the different cognitive levels of learning is imperative for the development of assessments.
- General course objectives (module outcomes) should be abstracted from a variety of sources such as institutional guidelines, accrediting bodies, etc.

Institutional policies and guidelines

According to the NWU Academic Support Services, the module outcomes are crucial because they inform the learning outcomes of a module and influence teaching and learning (NWU, 2013:7). The difference between module outcomes and learning outcomes is explained in the NWU's Manual for the Writing of Study Guides (NWU, 2011b:7). According to this manual, module outcomes provide an integrated and general description of what students should know, what they should be able to do and the competencies they should have after completion of the module. The manual states that the action words in the module outcomes should be less specific than those used in the learning outcomes. Therefore, it does not necessarily pertain to what will be used in assessments, but rather to the competencies that the student will use in the workplace.

According to the NWU Teaching and Learning Policy (NWU, 2011c), the module outcomes of all modules at the university should adhere to the NQF level descriptors applicable to the level of the module. Module outcomes should provide an integrated and general description of the competencies expected of students as suggested in the NQF level descriptors. It should be noted that specific measurable action verbs are not of particular importance in developing module outcomes. The formulations in the NQF level descriptors should be used instead of the revised Bloom's Taxonomy (NWU, 2013:8).

The programme outcomes and the requirements of professional bodies should also be taken into account when formulating module outcomes (NWU, 2013:8).

Interviews with NWU Academic Support Services

After the researcher introduced and explained the SAICA competency framework to the academic advisers, they indicated that the difference between the NQF level descriptors and the framework is that the former are more educational while the latter is more focused on the discipline and the profession. They, however, agreed that the SAICA competencies would still be able to be included in the module outcomes:

"The SAICA descriptors for NQF level eight could be combined with the SAQA level descriptors."

"So, it is not as if the SAICA outcomes will exactly fit into our outcomes but it can be moulded so that it does fit in."

"I would use the SAICA competency framework for both the module outcomes and the learning outcomes."

It was, however, confirmed that the revised Bloom's Taxonomy is not appropriate for the development of the module outcomes because module outcomes are broad statements that focus on generic competencies rather than just the knowledge requirements. Module outcomes do not have to be measurable:

"Bloom would rather be used in developing the assessment criteria, assessments and learning outcomes."

The following was also established regarding the formulation of module outcomes:

- Module outcomes are more vague than assessment criteria and learning outcomes;
- Module outcomes should also be linked to a competence;
- Module outcomes do not need to be measurable; and
- Module outcomes have to be written as generic as possible.

Discussion

Based on the information obtained from the literature study, policies and guidelines of the NWU and the interviews with Academic Support Services, it is clear that module outcomes should be based on the NQF level descriptors issued by SAQA while keeping in mind the competency framework requirements of SAICA. It should be mentioned that, although the SAICA competency framework refers to different levels of achievement, the overall level is at fourth year (NQF level 8). This is because of the fact that the competencies described in the competency framework are applicable to an entry-level CA, who has completed four years of study. The revised Bloom's Taxonomy is, however, not appropriate for the development of module outcomes, as the module outcomes do not have to be measurable and should be as generic as possible.

Module outcomes do not only focus on curricular content, but also on the competencies that the student should have mastered at completion of the module.

It can, therefore, be concluded that, although module outcomes should undoubtedly be informed mainly by the NQF level descriptors, the SAICA competency framework has a role to play and should be consulted in the development of module outcomes for a module within a CA programme.

The following is an example of the proposed module outcomes for a third-year Financial Management module in a CA programme (NQF level 7):

On completion of the module, the student should be able to demonstrate the following:

- An integrated knowledge and critical understanding of key terms, theories and principles in the field of Financial Management
- A critical understanding of the available techniques for solving a Financial Management problem
- The ability to identify, analyse, evaluate, critically reflect on and solve complex, integrated problems
- The ability to consult and validate different sources of information and evaluate and manage a complex set of information
- The ability to develop ideas and opinions and communicate these ideas and opinions in a well-formed argument in a professional manner
- The ability to make decisions with an understanding of how decisions in one area of an organisation impact on other areas
- An ability to take full responsibility for self-reflection and self-discovery that support continuing personal and professional development and lifelong learning ability

Source: Researcher

From the above it is clear that the module outcomes are based on the generic competencies listed in the NQF level descriptors for NQF level 7. The module outcomes are not based on the curricular content, but on the competencies required of the student upon completion of the module. The module outcomes as presented are broad. At the NWU these module outcomes are communicated to the student in the annual yearbook of the Faculty of Economic and Management Sciences. Module outcomes inform the development of the learning outcomes and provide an indication of all the competencies required from the student upon completion of the module, not just the knowledge requirements.

8.3.3 Learning outcomes

Literature review

The following was highlighted from the literature regarding the development of learning outcomes:

- Module outcomes should be supported by more specific learning outcomes.
- Learning outcomes are more specific than module outcomes and focus on the content of the module.
- Learning outcomes indicate what the learner is expected to know, understand or be able to do after completing a module, as well as how that learning will be

demonstrated. It was described as a precise specification of knowledge and skills (paragraph 4.2.3, page 70).

- Every module has its own set of learning outcomes which should be generated according to the cognitive levels of a learning taxonomy, such as Bloom's Taxonomy.
- The wording of learning outcomes is crucial and learning outcomes should be specified with precision.
- Learning outcomes should contain verbs that refer to the applicable cognitive process. Because they should be turned into measurable goals, verbs that are ambiguous and difficult to measure should be avoided. Lecturers are advised to use the six process categories in the revised taxonomy as verbs when developing learning outcomes to avoid confusion (paragraph 4.2.3, page 70).

Institutional policies and guidelines

Learning outcomes should describe the minimum required level of achievement expected of the student upon completion of the study unit. It follows that learning outcomes cannot be based on only the knowledge level (NWU, 2013:11). Unlike module outcomes, learning outcomes should be precise, measurable and attainable and, therefore, it is imperative that measurable action verbs are used (NWU, 2013:11). Learning outcomes set the standard for the assessments (NWU, 2013:11) and should be aligned with the assessments that flow from the learning outcomes in order to provide quality education (NWU, 2013:12).

It has been shown that the **NQF level descriptors** provide general guidance for the development of outcomes, but do not prescribe curricular content. Learning outcomes follow from the module outcomes and assessment criteria. By using the module outcomes and assessment criteria as starting point, it follows that the relevant level descriptor is implicitly incorporated into the learning outcome (NWU, 2013:11).

NWU Academic Support Services suggested that the **revised Bloom's Taxonomy** be used to formulate the learning outcomes of the study units within modules (NWU, 2013:8). The requirements of the relevant professional bodies, in this case **SAICA**, should also be taken into account when formulating the learning outcomes (NWU, 2013:11).

Interviews with Academic Support Services

According to NWU Academic Support Services, the assessment criteria should be used to formulate the learning outcomes. This is a different approach than that of Moon's basic map of module development (Figure 8.1, page 165) where the learning outcomes are developed before the assessment criteria and the assessment criteria are implied by the learning

outcomes. After discussion with Academic Support Services, it was concurred that assessment criteria at the NWU precede the formulation of learning outcomes, and the model was adapted accordingly.

During the interviews with Academic Support Services it was established that the verbs in module outcomes do not have to be measurable. It is only in the assessment criteria and learning outcomes that measurable verbs have to be used.

“Because in the learning outcomes you spell out what the student has to be able to do.”

After discussions with Academic Support Services and the analysis of the institutional policies and guidelines, it was inferred that the formulation of learning outcomes at the NWU is mainly informed by the competency framework of **SAICA** and the **revised Bloom’s Taxonomy**. The **NQF level descriptors** indirectly influence the learning outcomes, because the learning outcomes follow from the assessment criteria and module outcomes which, in turn, are mainly informed by the SAQA level descriptors.

Discussion

From the above, it can be concluded that learning outcomes are much more specific than module outcomes and should include action verbs that are measurable. Learning outcomes are formulated per study unit, are focused on curricular content and unambiguously state what the student should be able to do upon completion of the study unit. It was also shown that the assessments have to be aligned to the learning outcomes.

Module outcomes are mainly informed by the NQF level descriptors, while the learning outcomes are informed by the SAICA competency framework and the revised Bloom’s Taxonomy. SAICA’s competency framework provides detailed information on which educational institutions base their learning programmes and is, therefore, ideal to provide the detail information for the learning outcomes.

The following is an example of what the learning outcomes of a single study unit (capital investment decisions) should be for a third-year Financial Management module (NQF level 7):

Capital investment decisions

Upon completion of this study unit you should be able to:

- Explain the reasons why capital budgeting is important to firms
- Explain the importance of cash flow rather than earnings in the evaluation of capital projects
- Distinguish between the different types of investment projects
- Evaluate a capital project by applying the appropriate techniques
- Discuss the advantages and disadvantages of the techniques used to evaluate capital projects
- Determine the relevant cash flows to be included in the evaluation of a capital project
- Take into account the tax implications and the effects of tax allowances on investment decisions
- Explain the effect of inflation on the capital budgeting decision
- Adjust for inflation by choosing the discount rate or calculating the future cash flow

Source: Adapted from Correia *et al.* (2015:8-1)

From the above, it can be noted that learning outcomes are much more specific than the module outcomes and assessment criteria and include action verbs that indicate the knowledge and skills required of the student. The levels of Bloom's Taxonomy are not addressed in this section but are discussed in chapter 9.

8.3.4 Assessment criteria

Literature review

Although the literature on assessment criteria was limited, it was established that assessment criteria should be guided by the NQF level descriptors, as the statements describing learning achievement in the NQF level descriptor document provide an indication of both learning outcomes and assessment criteria (SAQA, 2012:5). The level descriptors could be used as a guide for developing learning outcomes and assessment criteria (SAQA, 2012:6).

Institutional policies and guidelines

Assessment criteria are developed from the module outcomes and, in turn, are used to develop the learning outcomes for the study units within a module (NWU, 2013:8). According to the NWU Assessment and Moderation Policy, assessment criteria should be formulated clearly and communicated explicitly to the students (NWU, 2011a:1).

Interviews with Academic Support Services

During the interviews with Academic Support Services it was confirmed that assessment criteria are required in order to register a module. Assessment criteria are developed from the module outcomes and are much more specific. Learning outcomes, in turn, are more specific than assessment criteria:

"You can typically have more assessment criteria than module outcomes. And assessment criteria are much more specific than module outcomes."

"It is possible to have more than one assessment criteria per module outcome. But then you have a lot more learning outcomes per module outcome, so therefore it is more specific than assessment criteria."

Based on a question as to the difference between assessment criteria and learning outcomes, it was established that, although not official, learning outcomes could actually serve as assessment criteria because of the fact that they state in some detail what the student should be able to do after completion of the module.

"Learning outcomes are often also seen as the assessment criteria. It is very ambiguous. You could mould and rewrite assessment criteria as a learning outcome. Both the learning outcomes and the assessment criteria are much more specific than the module outcomes. Module outcomes are relatively broad."

It could, therefore, be said that learning outcomes are actually more specific assessment criteria.

From the discussions with Academic Support Services, it was determined that assessment criteria are informed by the NQF level descriptors, the SAICA competency framework and the revised Bloom's Taxonomy. Learning outcomes do not have assessment criteria; only module outcomes have assessment criteria.

"With assessment criteria Bloom comes into play because the assessment criteria have to be measurable."

Discussion

It can be concluded that assessment criteria should be based on the module outcomes. Therefore, assessment criteria are developed after the formulation of the module outcomes and, in turn, inform the development of the learning outcomes. Assessment criteria are more specific than the module outcomes and should be measurable. Every module outcome could have more than one assessment criterion.

Assessment criteria should be based on the NQF level descriptors and the SAICA competency framework. Because they have to be measurable, assessment criteria should also be developed with the aid of Bloom's Taxonomy.

The following is an example of the assessment criteria based on the module outcomes of a third-year Financial Management module (NQF level 7). The module outcomes with their related assessment criteria are used as an illustration of how assessment criteria are developed.

Module outcomes	Assessment criteria
<i>After completion of this module the student will demonstrate the following:</i>	<i>Students have mastered the outcomes if they are able to:</i>
1. An integrated knowledge and critical understanding of key terms, theories and principles in the field of Financial Management	• Evaluate and apply key terms, theories and principles in Financial Management to advanced investment, financing and dividend decisions • Integrate knowledge from other disciplines in the field of accountancy in solving Financial Management problems
2. A critical understanding of the available techniques for solving a Financial Management problem	• Evaluate the available techniques for solving a Financial Management problem • Select, critique and apply the most appropriate technique for resolving a specific problem
3. The ability to identify, analyse, evaluate, critically reflect on and solve complex, integrated problems	• Critically analyse, evaluate and reflect on complex Financial Management problems • Draw on appropriate evidence and theory-driven arguments in order to create a solution for solving a complex, integrated problem relating to investment, financing and dividend decisions
4. The ability to consult and validate different sources of information and evaluate and manage a complex set of information	• Analyse, evaluate and organise a set of complex information • Manage and interpret the information in order to solve a complex problem

5. The ability to develop ideas and opinions and communicate these ideas and opinions in a well-formed argument in a professional manner	• Communicate opinions and ideas in well-formed arguments in a professional manner and appropriate format
6. The ability to make decisions with an understanding of how decisions in one area of an organisation impact other areas	• Make financing and investment decisions, taking into account how decisions in one area impact other areas
7. The ability to effectively and responsibly apply the pervasive qualities and skills required in finance practice	• Justify decisions and conduct in terms of the code of conduct of the professional accounting bodies • Reflect on and take full responsibility for the ethical implications of decisions and actions

Source: Researcher

The above indicates clearly that the module outcomes include more than just the knowledge skills; other competency areas are also included, and knowledge is only part of this. The assessment criteria are derived from the module outcomes, but are more specific. They provide an indication of how the student is expected to demonstrate the knowledge or competencies required as set out in the module outcomes. It is also clear that some of the outcomes have more than one associated assessment criterion.

8.3.5 Assessment

Literature review

The following can be highlighted from the literature review:

- Student learning is directly impacted by the level of examinations (paragraph 5.6, page 116).
- Literacy and thinking can be enhanced when examination questions are set at the higher cognitive levels of Bloom's Taxonomy, and students' reasoning and problem-solving skills can be enhanced by using a combination of higher-order and lower-order questions (paragraph 5.6, page 116).

Institutional policies and guidelines

The NWU assessment practices are in agreement with the National Education Policy for Outcomes-Based Education and the NQF level descriptors (NWU, 2011a:1) and in accordance with the NWU Assessment and Moderation Policy (NWU, 2011c:2). According to

the Assessment and Moderation Policy, all assessments are guided by the clearly formulated module outcomes and adhere to the requirements of the relevant NQF level descriptor (NWU, 2011a:1). Assessments have to be not only suitable, valid and reliable in measuring the stated module outcomes, but also aligned with learning outcomes in order to ensure quality (NWU, 2013:12). Action verbs similar to those contained in the learning outcomes should be used in the assessments (NWU, 2013:13).

Interviews with Academic Support Services

From the interviews with Academic Support Services it was established that assessments should be in line with assessment criteria and learning outcomes. The NQF level descriptors do not directly inform the assessments, and Bloom's Taxonomy should be used to develop assessments:

"Bloom would rather be used in developing the assessment criteria, assessments and learning outcomes."

Discussion

As assessments are based on the assessment criteria and learning outcomes, it follows that assessments in CA programmes at South African universities are mainly informed by the SAICA competency framework. This is because the SAICA competency framework informs the learning outcomes of modules in these programmes. However, because SAICA's competency framework is at fourth-year level, the revised Bloom's Taxonomy is used to ensure that assessments apply the appropriate combination of higher-order and lower-order questions for each year level within a CA programme.

It could be said that SAQA delegates the responsibility for quality to SAICA, in other words, that SAQA relies on SAICA for ensuring quality in CA programmes. Therefore, when the stringent criteria for SAICA accreditation have been met, the quality of a programme can be deemed to be adequate. But quality should not be mistaken for levels, and it cannot be assumed that assessments are necessarily on the appropriate level when a programme is SAICA accredited.

8.4 RESULTS OF INTERVIEWS

The main purpose of the questionnaire (Appendix D, page 368) was, first, to gain insight into academic staff members' understanding of the processes in developing their modules and, secondly, to use this insight in interviews. Interviews were conducted with lecturers involved in teaching MAF modules at second-year, third-year and CTA levels at six South African universities accredited with SAICA. The method followed in conducting the interviews were

discussed in chapter 7 (paragraph 7.5, page 147). The results of the interviews are presented in the following section.

8.4.1 Major influences in the development of modules in CA programmes

One aspect of the process of module development is an understanding of the role and influence of the different stakeholders in this process. Questions were asked regarding the role players in CA programmes at South African universities, which were discussed in paragraph 8.2 of this chapter.

The table below provides a snapshot of how academics in the MAF discipline perceive the role of the different stakeholders. The figures indicate the number of respondents who indicated the respective frameworks or taxonomies as the driving force for the development of module outcomes, learning outcomes and assessments.

Table 8.1: Frameworks informing module development as perceived by academic staff

Informing framework/taxonomy	Development of		
	Module outcomes	Learning outcomes	Assessment
SAQA NQF level descriptors	1	0	0
SAICA competency framework	12	12	12
Bloom's Taxonomy	0	1	1
SAICA and SAQA	1	0	0
SAQA and Bloom's Taxonomy	0	1	0
SAICA and Bloom's Taxonomy	0	0	1

Source: Researcher

From the above table, it is clear that SAICA is perceived to be the major role player in the development of MAF modules within CA programmes at South African universities. Assessment criteria are not reported in the above table, as only one lecturer was familiar with the term “assessment criteria” (paragraph 8.4.4, page 188). The details of the results in the table are addressed in the subsections below.

8.4.1.1 SAQA

Respondents were asked whether they were aware of the SAQA NQF level descriptors (Appendix D, question 4). Of the 14 interviewees only four indicated that they were aware of the NQF level descriptors. Of these four lecturers three lectured at CTA level. Another seven replied that they had heard about them, but did not know the detail of the document. Some of the replies are listed below:

"I am aware that it exists, but I can't say that I have ever really thought about it." [A3]

"I remember it vaguely." [C3]

"You hear those things at meetings, but I have never applied it in curriculum development or so." [D2]

"I have heard of it, but I don't know the detail of it." [E3]

The remaining three respondents indicated that they were not aware of the SAQA NQF level descriptors.

8.4.1.2 SAICA

From the responses to almost all of the questions posed to them, the academic staff members' perception seemed to be that SAICA was definitely the major role player in almost all aspects of CA programmes at South African universities, including module outcomes, learning outcomes and assessments. A great deal of attention is apparently paid to the SAICA competency framework in these programmes:

"But in the end of the day, what do we want to achieve? We want to get them to SAICA's competency framework." [A1]

"The focus is very much on the SAICA outcomes. One thing you cannot have is SAICA being unhappy." [C2]

"So one can say, especially at CTA level, the competency framework is our syllabus and I work according to it diligently." [D2]

All the interviewees commented that the curriculums of their programmes were based on the SAICA competency framework (Appendix D, question 5). One lecturer even identified SAICA as the responsible "person" for developing the learning outcomes:

"I would think that SAICA is. I think that we have to comply with them and if we don't then we are not accredited." [D1]

It was also mentioned that SAQA delegates authority to SAICA:

"I think what also often happens is that SAQA accepts the SAICA accreditation as is." [C3]

Even the university processes seem to be driven by SAICA, according to some of the academic staff members' responses to the question on how often the learning outcomes are reviewed (Appendix D, question 14):

"There is not a formal thing that we do it so often. But if there is a major change in the competency framework we would look." [A1]

"We do it when the competency framework changes." [C2]

"It depends on when the competency framework changes." [C3]

"Only when SAICA changes something." [D2]

"Obviously the moment when SAICA does something or if SAICA adds something." [E2]

"When the competency framework changes." [A2]

8.4.1.3 University policies and guidelines

The questions pertaining to university policies and guidelines are addressed in the sections for module outcomes, learning outcomes and assessments below.

8.4.1.4 Bloom's Taxonomy

Academic staff members of the different universities were asked whether they were familiar with Bloom's Taxonomy (Appendix D, question 6). Six respondents indicated that they were not aware of Bloom's Taxonomy. Three replied that they were aware of it and the other five indicated that, although they were aware of its existence, they did not have detailed knowledge of it:

"Aware that there is a Bloom, but if I had to read it my memory would be jogged. I am aware of it, but it's not a study that I have gone into detail. So I am aware that there is higher- and lower-order levels of thinking. But I haven't studied it myself." [A1]

Bloom's Taxonomy was explained to the respondents who had indicated that they were not aware of Bloom's Taxonomy and to the respondents who had indicated that they were aware of it but did not know the detail. It was apparent that some of the respondents realised the value that the taxonomy could add to their modules. One of the respondents replied as follows:

"I must get this information!" [F1]

Although there seems to be a general awareness of Bloom's Taxonomy of learning, lecturers do not seem to know the detail of the taxonomy.

8.4.2 Module outcomes

The goal of the questions regarding module outcomes (Appendix D, questions 7 to 9) was to establish the educational framework on which academics believed their module outcomes to be based. The possible frameworks were indicated as SAQA NQF level descriptors, the SAICA competency framework, university policies or Bloom's Taxonomy.

All the interviewees confirmed that their respective modules had both broad module outcomes and specific learning outcomes (Appendix D, question 7). The majority of MAF lecturers (12 out of 14) indicated that their module's outcomes were based on the SAICA competency framework.

It appeared that SAICA accreditation also played a big role in creating the impression that module outcomes should be based on the SAICA competency framework:

"We will look at SAICA first. I think that is because it is so big and it is so much work. And accreditation is so important. So that is where you begin." [E2]

Although one lecturer indicated SAQA as the framework influencing the development of module outcomes, the answer was not completely convincing and seemed to be based only on the fact that year levels were involved:

"I think there are year levels so SAQA will probably come into play..." [A3]

The other one of the two lecturers who did not indicated SAICA as the influencing framework for the development of module outcomes stated that their module outcomes were based on both the SAQA NQF level descriptors and the SAICA competency framework.

During the interviews with Academic Support Services and the analysis of the NWU Policies and Guidelines on Teaching and Learning, it was established that module outcomes should be based on the NQF level descriptors. Based on the above responses by lecturers from all universities, the perception among academics seems to be that module outcomes are based on the SAICA competency framework.

Lecturers were then explicitly asked whether they believed their module outcomes to be aligned to the NQF level descriptors (Appendix D, question 9). Only one respondent replied yes and one replied no. The other replies mostly indicated uncertainty:

"I don't know if they are. I don't think so." [B1]

"When I think of how our course is assembled with all the subjects that we have then it sounds as if we do incorporate all those skills." [C1]

"Not directly, but there is some sort of distinction along those lines." [A3]

Some of the respondents relied on university processes for the alignment of the module outcomes to the NQF level descriptors:

"At university level you are audited by SAQA and I think we did that alignment years ago." [C3]

"We did not do it, but I think it was done through the tuition board of the university to ensure that those things are on the same level." [E2]

"I think the institution is greater than me ... so my assumption is that that exercise has been done beforehand." [D1]

SAICA was also mentioned in the responses of three lecturers who implied that alignment was ensured by having SAICA accreditation:

"I think it would be. In order to have SAICA accreditation everything will be as it should be." [C2]

"I think what also often happens is that SAQA accepts the SAICA accreditation as is." [C3]

"I think to get accredited, you must. So I think reliance is for me to be placed on the system, that for us to be accredited as an institution that provides a CA degree, that exercise has been done." [D1]

Only one respondent indicated that their module outcomes were based on both the NQF level descriptors and the SAICA competency framework:

"I think SAICA and SAQA are used extensively." [D3]

This response is in line with the results of the interviews with NWU Academic Support Services and the analysis of institutional documents. It was concluded that, although module outcomes should be based on the NQF level descriptors, the requirements of the professional bodies should be taken into account.

None of the respondents indicated that their module outcomes were based on Bloom's Taxonomy. This is in line with the results obtained from the interviews with NWU Academic Support Staff and the analysis of institutional documents.

"I mean Bloom is nowhere for me." [A1]

8.4.3 Learning outcomes

As with the results of the framework for the module outcomes, the majority of the respondents indicated the SAICA competency framework as the guiding document for the

development of learning outcomes (Appendix D, question 11). Again, as with the module outcomes, 12 of the respondents replied that the learning outcomes were based on the SAICA competency framework.

"But in the end of the day, what do we want to achieve? We want them to get to SAICA's competency framework." [A1]

"It is pretty much copy and paste from the competency framework." [C3]

"The focus is pretty much on the SAICA outcomes." [C2]

"Definitely SAICA. For sure." [D2]

Although none of the respondents indicated that the module outcomes were based solely on the NQF level descriptors, one of the respondents felt that they were based on both the level descriptors and Bloom's Taxonomy. One other respondent did, however, mention the NQF level descriptors:

"We are not looking at SAQA levels necessarily, but I think indirectly we are because we know where second-years should be, third-years should be ..."
[A1]

Two respondents indicated that the learning outcomes were also based on the textbook outcomes. The SAICA competency framework was used as the main informing document and supplemented by the outcomes in the prescribed textbooks.

Respondents were specifically asked whether they used the NQF level descriptors in developing their learning outcomes (Appendix D, question 12). Only two respondents replied that the NQF level descriptors were taken into account to some extent. Both these respondents were, however, not convinced of this fact:

"I think we did try to incorporate it." [B1]

"I suspect so, yes. I don't think I know." [E3]

"I think it is something that flows from the bottom upwards. But I don't think it is something that we bother ourselves with too much." [E1]

Although only one of the respondents indicated Bloom's Taxonomy as the major influence in developing learning outcomes, several of the respondents did mention Bloom's Taxonomy as playing a role:

"Definitely SAICA, but the way in which the competencies are communicated to us, the way they are listed, it seems to me that they incorporate the different levels of Bloom." [C2]

"SAICA, but I still think Bloom would play a role because at second year I teach the same topic that they teach at third year but the requirement is more basic." [A2]

"I think Bloom's Taxonomy plays a role, but indirect." [A2]

On the question of how the learning outcomes of the respective modules were developed and who the responsible person was (Appendix D, questions 13 and 14), eight of the respondents indicated that their learning outcomes came straight from the SAICA competency framework. Some of the responses were as follows:

"We pretty much take the SAICA competency framework." [C2]

"The focus is very much on the SAICA outcomes." [C3]

"I would start with the document of the governing body and from there we would look at what is required for what topic and how it can be included." [E2]

Six of the respondents replied that the lecturer responsible for the module or the subject head was responsible for developing the learning outcomes of each module. Two lecturers were not sure how the outcomes were developed and stated these had already been there when they started at the university. It is interesting to note that one of these respondents had been with the university for a number of years.

"No, I inherited it ..." [B1]

"Am not sure, it was before my time." [C2]

Two other lecturers said that the university committees were responsible for the development of the outcomes.

Respondents' answers on how often the outcomes were reviewed ranged from every year to five years. Three of the respondents indicated that the learning outcomes were reviewed every year. One respondent was not aware that the outcomes had ever changed:

"I think historically a lot of outcomes have been there for however long and they have never been changed." [A1]

As with the other questions, SAICA was mentioned in the responses. Four respondents answered that review only took place when there were changes in the SAICA competency framework.

"Only when SAICA changes something." [D2]

For all the universities the responses of the different lecturers from the same university were not consistent, and for five of the six universities the responses of all three lecturers were different. This might be an indication that academic staff members are not always familiar with the process of developing and reviewing learning outcomes.

8.4.4 Assessment criteria

The lecturers in MAF were asked whether they were aware of assessment criteria and whether they made use of assessment criteria in their respective modules (Appendix D, question 10). Only one lecturer was clear on what assessment criteria are. One other respondent was aware that they were part of the curriculum development process:

"I know about assessment criteria in terms of the forms that you complete for the university." [A1]

The other respondents all indicated that they were not familiar with the term. Some of the responses were as follows:

"No, I am not 100% sure what that is." [C1]

"Please clarify that." [C2]

"Explain it please." [C3]

"What is assessment criteria?" [E2]

"What is that?" [E3]

After the researcher explained the term to the academic staff and enquired whether assessment criteria were applied in their module or at their institutions, the responses confirmed that academic staff were not familiar with assessment criteria and that assessment criteria were definitely not used by academic staff at the universities in this study:

"It might be somewhere in the files." [C3]

"The university has assessment criteria, but our department and our module... we have our own specific criteria. I don't think it's documented per se, but I mean we do discuss at our meetings as to what we are trying to achieve." [D1]

"No, we don't have anything like that formalised." [A1]

Only one academic staff member was familiar with assessment criteria and knew that assessment criteria were actually in place:

"So we do make sure that it is aligned to the NQF in terms of the level descriptors. That is separate from the module outcomes. Because you can have module outcomes that are the same for second- and third-year students"

but we expect more in-depth level of understanding when it comes to our third-year students.” [D3]

It was interesting that the other two lecturers from the same university and in the same subject group who were interviewed were not aware that they had assessment criteria or what they were.

The above findings are in line with the literature on assessment criteria which showed that academic staff often ignore assessment criteria (Bloxham, 2009:211).

8.4.5 Assessments

The objective with the questions pertaining to assessments (Appendix D, questions 15 to 21) was to establish which of the frameworks or taxonomies influenced the development of assessments in the MAF modules of CA programmes, whether attention is paid to higher-order and lower-order cognitive levels, and whether academics lecturing these modules pay attention to the action verbs used in assessments.

Framework informing assessments

Academic staff members were asked which framework or taxonomy drove the development of assessments in their respective modules (Appendix D, question 15). As with the module outcomes and the learning outcomes, respondents indicated the SAICA competency framework as the main influence on their assessments. From the responses it was clear that students needed to be prepared for the SAICA board examination:

“You know, what is the point of perfecting someone in an area that you know there is very little chance that they [SAICA] are going to assess and therefore the candidate won’t succeed in the board exam.” [F1]

“SAICA because I have to have people exiting at that level. It’s not SAQA.” [A1]

“SAICA competency framework, because we at honours serve as the exit point for the ITC, we ensure that we reach the levels as required by the competency framework.” [C3]

Accreditation with SAICA was also mentioned in the questions on assessment:

“Because it is accredited, SAICA is automatically incorporated in the material.” [E1]

Some of the respondents did recognise that the SAICA competency framework outcomes were at a CTA level and should therefore be adjusted for second-year and third-year students:

“SAICA, but there is a distinction of the year level. The required will be changing based on the year level that we are assessing.” [A3]

“For example when we do ratios. I know on my level we focus more on calculations and then just one mark for discussion. But on third-year level they ask much more ... the weight is more to understanding of and evaluating.” [E3]

“So if SAICA says evaluate or whatever, then we deal with that high level integration in the honours and for the second year and third year we do the basic, the lower level Bloom’s Taxonomy.” [C3]

Only one respondent indicated Bloom’s Taxonomy as the main driver of assessments, and one other respondent (lecturing at CTA level) felt that both Bloom’s Taxonomy and the SAICA competency framework were used in the development of assessments:

“Because the module is accredited, SAICA is automatically incorporated in the material. And then you should focus on Bloom to ensure you cover everything on an adequate basis.” [E1]

Although the majority of the respondents clearly and explicitly indicated SAICA as the driving force behind their assessments, Bloom was mentioned as playing a role in the development of assessments:

“Definitely SAICA but I will say that the way the competencies are communicated to us, the way they are listed, it seems to me that they incorporate the different levels [of Bloom’s Taxonomy]. So, we don’t specifically go with this level, this level and this level but ... I think it is incorporated in there implicitly.” [C2]

When asked specifically whether Bloom’s Taxonomy was ever used in the development of assessments (Appendix D, question 17) some respondents did indicate that the taxonomy was taken into account indirectly when developing assessments:

“Yes, the principle of easy marks, difficult marks and genuinely difficult marks.” [D2]

None of the respondents indicated the NQF level descriptors as the main framework for developing assessments (Appendix D, question 16). Respondents were explicitly asked whether they considered the NQF level descriptors in developing their assessments. The majority of the respondents (12) indicated that they did not use the NQF level descriptors for

developing assessments at all. One respondent felt that the level descriptors would be taken into account automatically:

"I think if you do Bloom and SAICA correctly, then SAQA will be addressed automatically." [E1]

The other respondent linked the level descriptors to the level of the question:

"I have done it. For example when I have to think about how to formulate the question." [E3]

Higher- and lower-order cognitive levels

MAF lecturers were asked whether they considered the cognitive levels of learning (higher and lower order) when developing learning outcomes and assessments (Appendix D, question 18). All respondents responded positively and indicated that they did take the cognitive levels of learning into account when developing their assessments. When asked whether they believed their summative assessments had a balance between higher-order and lower-order questions (Appendix D, question 19) the responses were mostly positive. Most of the respondents merely answered "yes" to this question, but some did elaborate and motivated their answer:

"I mean, I think an assessment must have a mix of or a balance of lower level you know, where it's like numeracy things, very easy things, but then there needs to be an element of it where they are tapping into areas where they have to think about it. They have to apply the knowledge to a different scenario." [D1]

"Something on that is that I try to explain to the students at honours level a bit of cognition. So what I tell them is think about how to answer the question and then I explain to them if you have to answer a question at honours level we test higher-order thinking skills like reasoning debating, arguing, synthesising, whatever." [D2]

"If it is on lower level I make sure that the required is more of a lower-order thinking skill and maybe depending on the topic if they have enough exposure adding analysing, interpreting or something else or come up with a solution." [A2]

Respondents were also asked regarding the guidelines provided by their institution with regard to exposure to higher-order and lower-order cognitive levels (Appendix D, question 20). The respondents from only one university were aware that the university had guidelines, and these respondents also knew what the guidelines were. Four of the respondents clearly

stated that their institutions did not have such guidelines. Another three respondents were not sure:

"They will have. I have never looked at it, but they will have." [D2]

"I have no idea." [E3]

"I know there is a document that prescribes what assessments should look like, but I think it is not driven by the university or the department. No, I don't really know." [E2]

The rest of the respondents indicated that there were informal guidelines:

"It is not hard and fast and it is not specific guidelines that are written down anywhere. It's sort of informal things that are communicated from senior to junior lecturers." [C2]

"There is nothing on record or a written something to say this is the percentage but there is a sort of general guideline that we talk about ..." [C1]

"I don't think it's formal, it's informal." [C3]

"There is basically a rule of thumb that says 40% lower, 40% higher and 20% in the middle of the second year. And then it changes as you go to third year and CTA. But that's just a rule of thumb. You hear it in the passages." [D3]

It was interesting to note a theme coming through, namely that the guidelines regarding the balance between higher-order and lower-order questions were discussed among academic staff ("you hear it in the passages") and passed on from senior to junior staff.

Attention to action verbs

Academic staff members of the different universities were asked whether they paid attention to the action verbs they used in the learning outcomes and assessments (Appendix D, question 21). All of the respondents indicated that they did pay attention to the verbs they used:

"Yes, a lot. It is important to us." [C1]

"Yes, we spend a lot of time on it. It is important to guide the student in a specific direction." [C3]

"I think those verbs are very important." [D1]

The awareness of the requirements of SAICA could also be observed in the answers to this question:

"We try to make sure that it is the same type of words that they use in the ITC." [D3]

One of the respondents shared a situation where a certain verb was used in a formative test on CTA level. The verb was interpreted incorrectly by the majority of students. The lecturer commented that this particular event made him especially aware of the verbs used in assessment questions.

8.4.6 Alignment

Questions regarding the alignment of assessments to learning outcomes were asked to the respondents. Lecturers were asked whether they consulted the learning outcomes when they prepared assessments (Appendix D, question 22). Four respondents admitted that they did not consult the learning outcomes when preparing assessments:

"No (laughed). I try to cover the topics." [E1]

Some of the lecturers did consult the outcomes, but not often:

"... on a rare occasion." [A1]

"Sometimes I do." [C3]

Six respondents said that they definitely consulted the learning outcomes when preparing assessments, and the rest indicated that they knew the outcomes well enough that they did not have to go back to the outcomes when preparing the assessments. These lecturers had been lecturing for a period of between three and 12 years.

On the question of whether they considered the alignment of assessments to learning outcomes when preparing assessments (Appendix D, question 23), 11 of the respondents replied that they did consider the alignment of the assessments to the learning outcomes:

"When we set our tests we make sure that that which we ask is aligned to the learning outcomes themselves." [C1]

The other three respondents said that, although they considered the alignment of assessments to learning outcomes, it was indirectly:

"Indirectly. Not particular attention. We don't go and compare the two, but indirectly we do." [A1]

"So I think there is alignment, but it is not direct." [A3]

8.5 FRAMEWORK FOR THE DEVELOPMENT OF LEARNING OUTCOMES AND ASSESSMENTS IN CA PROGRAMMES IN SOUTH AFRICA

After performing the literature review, the interview with NWU Academic Support Services, the interviews with academic staff and the analysis of the institutional documents and policies of NWU, the original diagram for module development by Moon (2002) was adjusted for CA programmes at South African universities. The adjusted diagram sets out the process of module development and provides an indication of the frameworks or taxonomies that influence the elements in the process.

In paragraph 8.3 (page 167) the elements in module development were identified based on a case study of NWU, and the frameworks that influence these elements were identified. In paragraph 8.2 (page 165) it was shown that the stakeholders in these programmes are SAQA, the universities themselves and the professional body, SAICA. The roles of these stakeholders were investigated through the analysis of documentation and interviews with both academic staff members and staff of NWU Academic Support Services. These elements and the frameworks that influence them, as well as the framework that determines the level requirements, are summarised in Table 8.2.

Table 8.2: Elements in the process of module development and the informing frameworks

PROCESS		
Elements in the process	Level requirements	Institutional frameworks
Aim	NQF	SAICA NWU
Module outcomes	NQF	SAICA NWU
Assessment criteria	NQF Bloom	SAICA NWU
Learning outcomes	Bloom	SAICA
Assessments	Bloom	SAICA

Source: Researcher

Based on the evidence provided in this chapter the revised map for module development in CA programmes are presented in Figure 8.2 below.

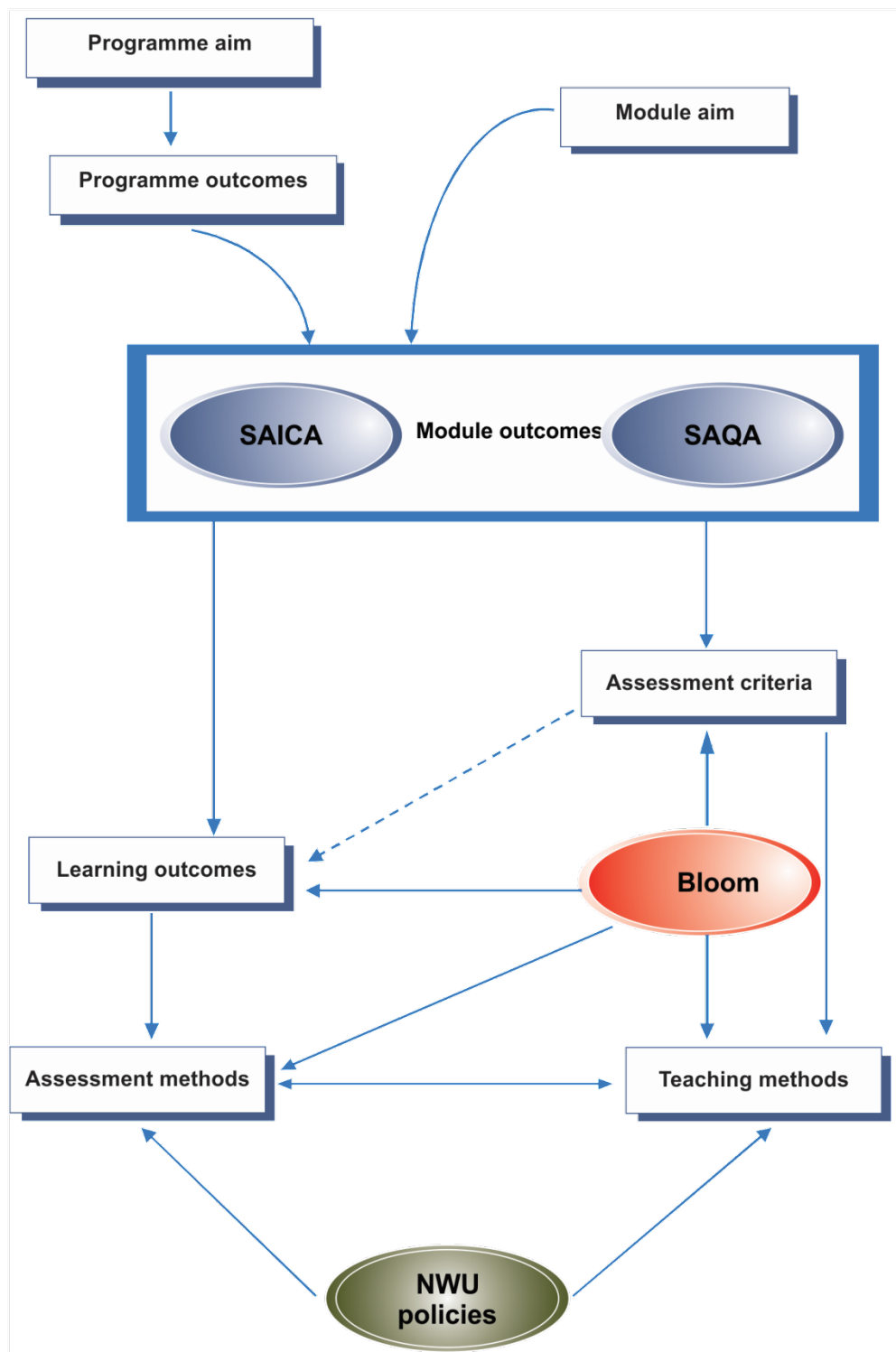


Figure 8.2: Framework for module development in CA programmes at South African universities

Source: Researcher

Notes to Figure 8.2 above:

- i. The elements in the process of module development are indicated in blocks.
- ii. The frameworks informing these elements and the level requirements of each of the elements are indicated in the oval shapes.
- iii. The aim of the programme, the programme outcomes and the aim of the module were shown to be an important part of module development.
- iv. The module aim informs the module outcomes of the module and, for this reason, these three elements are listed at the top of the diagram.

During the discussion with NWU Academic Support Services, it was concurred that “translating level descriptors into subject descriptors” in the original Moon diagram is the equivalent of the module outcomes at NWU. Module outcomes at NWU are based on NQF level descriptors and serve as the subject descriptors. This block in the revised diagram is, therefore, replaced with “module outcomes”.

In South Africa the assessment criteria are above the learning outcomes. Assessment criteria are derived from the module outcomes and include more detailed guidance of what is expected of the student in order to prove that the module outcomes have been reached. The learning outcomes follow from the assessment criteria. It was, however, also established that, although assessment criteria are required for a module to be registered, the learning outcomes could serve as detailed assessment criteria. For this reason, the line between learning outcomes and assessment criteria is dashed.

Although the assessment methods follow from the assessment criteria, South African CA programmes are mainly informed by the SAICA competency framework. Following the lines from assessment criteria to assessments, it is implied that assessments are indirectly linked to the assessment criteria and the module outcomes as well and are, therefore, indirectly informed by the NQF level descriptors.

In South Africa the NQF level descriptors are valid for the academic levels of South African higher education institutions and inform the levels of modules at different year levels. The level descriptors are, however, not part of the elements of a module, but rather seen as a framework informing the process. Therefore, SAQA is indicated as one of the frameworks informing the process, instead of an element.

From the analysis of NWU institutional documents and interviews with staff members from Academic Support Services, it was concluded that the revised Bloom’s Taxonomy informed

the assessment criteria, learning outcomes and assessments in CA programmes and should be applied in order to ensure the appropriate cognitive levels of learning.

Each university have policies and guidelines guiding their teaching and learning. This is also the case for the NWU and, therefore, NWU policies and guidelines are included in the diagram. Teaching methods link with learning outcomes and assessment criteria, but are beyond the scope of this study.

8.6 SUMMARY

The aim of this chapter was to gain an understanding of the development of modules within CA programmes at South African universities, as well as of the roles that the different stakeholders play in this process. NWU was used as a case study, and the process followed at this university was documented based on an analysis of institutional documents and interview with staff of Academic Support Services.

The major role players in CA programmes in South Africa were identified as SAQA, the professional body, SAICA, and the universities themselves. SAQA, through the NQF level descriptors, informs the module outcomes and assessment criteria of modules. SAICA, being the professional body, informs not only the module outcomes, but also the learning outcomes and assessments of the modules in CA programmes. This is because the SAICA competency framework provides detailed guidance on what should be covered in CA modules. Taxonomies of learning such as Bloom's Taxonomy also have a role to play in certain areas of the process of module development. Ultimately, modules presented at South African universities have to adhere to the policies and requirements of the universities themselves and, therefore, in the case of NWU, the policies and guidelines of the university play a role throughout the teaching and learning process.

Based on the literature review, interviews with academic staff from the different universities and with staff members of NWU Academic Support Services, and analysis of NWU institutional documents, a framework was suggested for the development of modules within CA programmes at South African universities. In so doing, research objectives 1.5.2.5 and 1.5.2.6 (page 12) have been reached. The results of the second phase of the empirical research in this study are presented in chapter 9.

CHAPTER 9:

EVALUATING THE PERTINENCE OF EDUCATIONAL-LEVEL REQUIREMENTS

9.1 INTRODUCTION

As set out in chapter 1 the main objective of this study was to evaluate the pertinence and alignment of educational-level requirements to learning outcomes and summative assessments in CA programmes at South African SAICA-accredited universities (paragraph 1.5.1, page 11). In order to reach the main objective several secondary objectives were set, of which the following will be addressed in this chapter:

- To develop an appropriate framework for applying a taxonomy of learning in the discipline of MAF (objective 1.5.2.7, page 12);
- To critically evaluate the application of these pertinent educational-level requirements by (objective 1.5.2.8, page 12):
 - Evaluating the cognitive levels of the competencies in the SAICA competency framework by applying the developed framework for application of a taxonomy of learning in the MAF discipline;
 - Evaluating the cognitive levels of the set learning outcomes by applying the developed framework for application of a taxonomy of learning in the MAF discipline; and
 - Evaluating the cognitive levels of the summative assessments by applying the developed framework for application of a taxonomy of learning in the MAF discipline.

It was concluded from the literature review that learning outcomes are the drivers of constructive alignment and that the alignment of learning outcomes and assessment tasks is the basic principle of constructive alignment (paragraph 6.3, page 131). Therefore, the remainder of this study will focus on the elements of learning outcomes and assessments as indicated by the arrows in Table 9.1. The process of module development, as well as the elements, frameworks and level descriptors informing this process, was identified in chapter 8. In this chapter the pertinence of these level requirements will be evaluated.

Table 9.1: Elements in the process of module development and the informing frameworks

PHASE 1: PROCESS (Chapter 8)	PHASE 2: PERTINENCE (Chapter 9)	
	Level requirements	Institutional frameworks
Aim	NQF	SAICA NWU
Module outcomes	NQF	SAICA NWU
Assessment criteria	NQF Bloom	SAICA NWU
Learning outcomes	Bloom	SAICA
Assessments	Bloom	SAICA

Source: Researcher

9.2 DEVELOPING A FRAMEWORK FOR APPLYING THE REVISED BLOOM'S TAXONOMY IN THE MAF DISCIPLINE

In this chapter the cognitive levels of learning for learning outcomes and assessments are analysed. In chapter 7 the arguments for the different taxonomies as conceptual framework for classifying learning outcomes and examination questions were set out (paragraph 7.6.3, page 153). It was argued that the revised Bloom's Taxonomy is appropriate for the classification of learning outcomes and assessment questions. Thompson *et al.* (2008:155), however, noted that it is vital to develop a common understanding of how the revised Bloom's Taxonomy should be interpreted for a specific domain.

This section proposes a framework for the interpretation of the revised Bloom's Taxonomy for Management Accounting and Financial Management based on a study of the definitions in the original work of Bloom *et al.* (1956) and Anderson *et al.* (2001), as well as subsequent research by Thompson *et al.* (2008), Nentl and Zietlow (2008), McConnell *et al.* (2003),

Jones *et al.* (2009), Towns (2010), Duron *et al.* (2006), Swart (2010), Dunham *et al.* (2015), Kidwell *et al.* (2013) and Davidson and Baldwin (2005). This framework cannot, however, be seen as an exact science, as no framework for the analysis of cognitive levels will yield the exact same results between raters (Dunham *et al.*, 2015:7). Instead, the objective was to create a framework to serve as a guideline for the analysis of learning outcomes and assessment questions at all levels in the MAF subject area.

The first step in creating this framework was to perform a thorough literature review on all published research on Bloom's Taxonomy and the revised Bloom's Taxonomy (paragraph 4.3.3, page 81). In this review it was established that the terminology used in the literature on Bloom's Taxonomy was too vague to be applied in the MAF discipline. The researcher, consequently, identified the need for a framework for MAF describing the levels for application in this discipline. This was also the case with Dunham *et al.* (2015), who identified the need for descriptions of the levels for statistics, and Thompson *et al.* (2008), who acknowledged the importance of a common understanding of the interpretation of the taxonomy in a discipline. Thompson *et al.* (2008) provided a consistent interpretation of Bloom's Taxonomy for computer science, with concrete examples. In the current study the same was done for the interpretation of the revised Bloom's Taxonomy for MAF by:

- Discussing each of the categories with reference to MAF based on the literature review and interviews with NWU Academic Support Services (paragraph 9.2.1);
- Identifying the typical action verbs for each of the categories for the discipline of accountancy from the literature (paragraph 9.2.2); and
- Proposing the categories of cognitive levels of learning and the distribution between the levels for each year level (paragraph 9.2.3).

The above was combined in a proposed framework for interpreting the revised Bloom's Taxonomy in the MAF discipline (paragraph 9.2.4) with the aim to analyse the cognitive levels of learning outcomes and assessment questions in MAF modules.

After completion of the literature review uncertainties and possible problem areas were discussed with staff members of NWU Academic Support Services who were deemed to have expert knowledge of the revised Bloom's Taxonomy. The results of the discussions are also presented in the following section as support for the suggested framework.

9.2.1 The application of the cognitive levels of the revised Bloom's Taxonomy to the MAF subject area

The six cognitive levels of the revised Bloom's Taxonomy (paragraph 4.3.3.2, page 88) were used as the basis of the suggested framework and its application in the MAF subject area. In an attempt to provide a consistent interpretation of Bloom's Taxonomy in the discipline of computer science, Thompson *et al.* (2008) clarified each of the categories by discussing its application to computer science and giving examples for each category of the taxonomy. The following discussion is similar to that of Thompson *et al.* (2008) and is based on the literature review of the cognitive levels of Bloom's Taxonomy (paragraph 4.3.3.1, page 81) and the results of the interviews with NWU Academic Support Services. The arguments for using the revised Bloom's Taxonomy were presented in chapter 7 (paragraph 7.6.3, page 153).

- **Remember**

Remembering involves the **recall of information** from the long-term memory, such as being able to recall a definition or factual information that was previously memorised, for example, criteria for listing on the JSE. Remembering further entails **recognising information** that have previously been obtained, such as the recognition of a certain source of finance as being a source of finance. At this cognitive level students are not required to understand the importance of the information or attribute any meaning to it.

In the discipline of MAF remembering is demonstrated by the ability to recall facts and define terms or to describe subject content. The typical question in this cognitive level would be simple without requiring much detail. The requirement in terms of information is that of pure recall.

Examples:

List the criteria for listing on the main board of the JSE.

List the roles of the financial manager.

Both these questions involve pure recall of information which was previously memorised by the student.

- **Understand**

Understanding involves translation, interpretation and extrapolation. **Translation** is where the student has to be able to use knowledge previously acquired by presenting the material in a way that is different to the way in which it was previously learned, such as converting a numerical financial ratio into words. Understanding could also involve **interpretation** of

information, for instance, identifying a break-even point from a graph, or classifying information into categories such as cost classifications. **Extrapolation** requires the student to be able to make predictions based on information provided, for example, predicting future sales based on past trends.

Students have to be able to compare ideas or concepts, such as identifying the advantages and disadvantages of different techniques to solve a problem, and explain the working of certain techniques or processes. It should, however, be noted that this does not include complex discussions.

Example:

Distinguish between Management Accounting and Financial Accounting.

Describe the factors that have influenced the changes in the competitive environment.

- **Apply**

Application involves using a theory or technique that the student has learned already and applying this theory or technique to a specific situation to solve a problem. Solving the problem could include calculations or making a decision, as well as applying methods, models or techniques which the student is familiar with to a specific problem or set of information, for instance, applying Gordon's growth model to determine the cost of equity of a company. In the MAF discipline this would often involve calculations. Application could also include identifying the most appropriate technique to solve the problem, although this would not involve complex decisions or situations. Application does not include complex case studies where the student has to deconstruct the problem in order to organise information or to determine whether information is relevant or not in solving the problem. Questions will, therefore, not contain large volumes of information.

Example:

Calculate the value of the preference shares of Company A.

This question involves a specified situation in which the student has to use a known method (present value of future cash flows) to perform calculations in order to solve the problem (i.e. the value of preference shares).

Calculate the cost of equity.

In this case the student also has to use a known technique (such as Capital Asset Pricing Model (CAPM)) in a new situation in order to answer the question. However, in this question more than one method might be appropriate to calculate the cost of equity (CAPM or

Gordon's growth model) and the student is expected to identify the appropriate method, as well as the information required, to solve the problem.

- **Analyse**

Analysis involves deconstructing a problem into components with an understanding of how the components fit together. In MAF this level requires using calculations, analysis, classifications and calculations where more than one method is involved in a specific situation. Analysis can be demonstrated by explaining why a certain technique or procedure is the best way to solve a problem. Students might be required to distinguish relevant information from non-relevant information in a case study (differentiating) or determine how events fit or function within an organisation. Analysis requires some degree of inference.

Example:

Perform a calculation to determine whether or not Company A should accept the special order.

In this case the student has to differentiate between relevant costs and costs that are not relevant to the decision. So even though the verb “calculate” might lead one to believe that the student has to “apply”, it falls under the subcategory of differentiate in the “analyse” category of the revised Bloom's Taxonomy.

Analyse the financial position of Company A.

In order to achieve this, the student has to break down the financial statements into relevant categories for analysis.

- **Evaluate**

Evaluation involves making qualitative or quantitative judgements regarding the value of a solution to a problem by using analysis or decisions, or methods, techniques or procedures based on a definite set of criteria or reasoned argument. This could include identifying the possible techniques or methods to solve a complex MAF problem, judging the effectiveness or appropriateness thereof and deciding on the most appropriate method to solve the problem, for example, being able to judge which method is best suited to perform a valuation of a company in a complex situation. Evaluation usually involves discussion, arguments or reasoning to perform an analysis or make a decision.

Example

Evaluate the working capital management of Company A.

This involves calculating working capital ratios and interpreting the ratios. After this the student is required to go a step further and to evaluate these ratios as to make a judgement on whether Company A's management of working capital is effective or not and whether it could be improved on. This involves both the subcategories of "checking" and "critiquing" of the revised Bloom's Taxonomy. If the student was required to only analyse the working capital ratios, this question would be classified as level 4 "analyse".

- **Create**

Creating implies applying methods, procedures or techniques to complex problems with large amounts of information where more than one method may be required in order to create a new solution or structure in a complex case study. In the MAF discipline the student is required to perform recalculations and make adjustments and projections in solving the complex problem.

Example:

Develop a strategy to manage a company's working capital.

The above information is summarised in a proposed framework in Table 9.8 (page 213). The table can be used to analyse and categorise learning outcomes and assessment questions according to the six cognitive levels of the revised Bloom's Taxonomy. Each of the cognitive levels of Bloom's Taxonomy contains certain typical verbs. The typical verbs in the discipline of MAF are presented in the following section.

9.2.2 Action verbs

In the literature review it was shown that certain verbs are activated in order to achieve learning outcomes (paragraph 4.6, page 99). These verbs vary according to the cognitive levels of learning and are, therefore, imperative in determining the cognitive levels of learning outcomes and assessment questions.

Previous research on Bloom's Taxonomy and verbs used in accounting and finance was consulted and all the verbs mentioned in these papers for the different cognitive levels of the taxonomy were added to a verb list. The following list of action verbs for the six cognitive levels of the revised Bloom's Taxonomy was compiled for this study from the accounting education literature (CIMA, 2010:9; Herbert *et al.*, 2009:23; Lakshmi, 2013:240; Ragan & Ragan, 2004:21; Yap *et al.*, 2014):

Table 9.2: List of action verbs used in accounting education

Typical verbs			
Level 1: Remember Verb	Source	Level 2: Understand Verb	Source
Calculate	3	Classify	2
Define	1,4,2	Comprehend	5
Describe	1,3,2	Convert	1,2
Explain	3	Demonstrate	3,5
Identify	1,2	Demonstrate appreciation	5
List	1,4,5	Demonstrate awareness	5
Memorise	2,5	Demonstrate understanding	5
Name	1,2	Describe	4,5
Order	2	Discuss	3
Outline	1	Distinguish	1,2,4
Recall	2	Estimate	2
Recognise	2	Explain	4,5
Select	1	Express	1,2
State	4	Extend	2
Write	5	Generalise	2
		Give examples	1,2
		Identify	4,5
		Illustrate	4,5
		Infer	2
		Interpret	1,3,5
		Paraphrase	5
		Predict	1,2
		Recognise	2,5
		Restate	2,5
		Rewrite	2
		Summarise	2,5
		Translate	2
		Understand	5
Level 3: Apply Verb	Source	Level 4: Analyse Verb	Source
Apply	2,3,4,5	Analyse	2,3,4,5
Arrange	1	Assess	5
Assign	5	Break down	2
Calculate	1,4,5	Calculate	2
Change	2	Categorise	2,4,5
Choose	2	Compare	2,4,5
Complete	5	Construct	4,5
Compute	2,5	Contrast	2,4
Construct	5	Criticise	2
Demonstrate	1,3,4,5	Differentiate	1,2,3
Describe with evaluation	3	Discuss	4,5
Discover	2	Distinguish	5
Employ	2,5	Estimate	1
Interpret	2	Examine	2,5
Manipulate	2	Experiment	2
Modify	1,2	Identify	2,5
Operate	1,2	Infer	1,2
Perform	5	Interpret	4
Prepare	4,5	Investigate	5
Reconcile	4	Manipulate	3
Relate	2	Model	2

Typical verbs			
Report	5	Order	1
Schedule	2	Prioritise	4
Select	5	Produce	4
Show	2	Question	2
Solve	1,4,5	Relate	2
Tabulate	4	Reorganise	2
Use	2,5	Review	5
Utilise	5	Revise	2
Write	2	Separate	1,5
		Set up	2
		Summarise	2
		Tell	2
		Write	2
Level 5: Evaluate Verb	Source	Level 6: Create Verb	Source
Advise	4	Arrange	2
Appraise	2,5	Assemble	2
Argue	2	Collect	2
Assess	1,2	Combine	1,2
Choose	2	Compose	1
Compare (complex)	1,2	Construct	1,2
Conclude	2	Create	1,2,5
Contrast (complex)	2	Design	1,2,5
Criticise	1,3,5	Develop	2,5
Defend	2	Devise	2
Discriminate	1,2	Formulate	1,2,5
Estimate	2	Generate	2
Evaluate	2,3,4,5	Integrate	2
Explain	2	Invent	5
Interpret	2	Manage	2
Judge	1,2,5	Organise	2
Justify	1,2,5	Plan	2
Predict	2	Propose	2
Rate	2	Rearrange	2
Recommend	4,5	Reorganise	2
Relate	2	Reconstruct	2
Select	2	Relate	2
Summarise	2	Resolve	5
Support	2	Revise	2
Value	2	Set up	2
		Solve	5
		Summarise	2
		Synthesise	2,5
		Tell	2
		Write	2

Sources:

1. Ragan and Ragan (2004:21) adapted from Gronlund (1988)
2. Herbert *et al.* (2009:23)
3. Lakshmi (2013:240)
4. CIMA (2010:9)
5. Yap *et al.* (2014:570)

The verbs in the table above are included in the framework for the classification of MAF learning outcomes and assessment questions according to the revised Bloom's Taxonomy (Table 9.8, page 213).

9.2.3 Cognitive levels of learning

The purpose of this section is to establish a proposed categorisation of the six levels of the revised Bloom's Taxonomy into lower- and higher-order skills. From the literature (paragraph 4.5, page 97) it was concluded that some authors see the lower two levels of the revised taxonomy (remember and understand) as the lower-order outcomes and levels 3 to 6 (apply, analyse, evaluate and create) as higher-order outcomes (Bloom *et al.*, 1956; Swart, 2010). Other authors group levels 1 to 3 (remember, understand and apply) together as lower-order outcomes and levels 4 to 6 (analyse, evaluate and create) as the higher-order outcomes. Crowe *et al.* (2008:370) regard level 1 and 2 as lower-order outcomes and levels 4 to 6 as higher-order outcomes. They state that "apply" could be seen as the link between the lower-order outcomes and the higher-order outcomes.

Levels 1 to 3 demand skills concerning remembering, attention and replication to some extent, while levels 4 to 6 require higher-level activity and processing actions (Lakshmi, 2013:240). Analyse, evaluate and create should be combined and constitute the higher-order cognitive skills. This is in accordance with Nentl and Zietlow (2008:161) who suggest that the process of analysing, evaluating and creating is ongoing and interrelated.

As with the other elements within module development, there are several role players that influence the cognitive levels of learning in the CA programmes at South African universities. The roles of these stakeholders are discussed below.

University policies

The following guidelines for the cognitive levels for the different levels of study are provided in NWU's Manual for the Writing of Interactive Study Guides for Contact or Open Distance Learning (NWU, 2013:11):

Table 9.3: Detailed guidelines for cognitive levels of learning at NWU

Year level 1	Year level 2	Year level 3	Year level 4
60% remember and understand	60% remember, understand and contextually apply	30% remember and understand	20% remember, higher-order application and understand
20% simple and contextual application	30% analyse and evaluate	20% more demanding and difficult application	80% analyse, evaluate and create
20% analyse and evaluate	10% create	50% analyse, evaluate and create	

Source: NWU (2013:11)

Professional body: SAICA

SAICA presents three levels of proficiency in their competency framework. The three levels of proficiency indicate the depth of detailed knowledge which is required, the required level of application and integration, and the complexity of the problem that has to be solved by the learners. It also determines the degree of rigour and independence with which learners should be able to complete a task (SAICA, 2014:18). SAICA stresses that, for all three levels, a high degree of contextualisation is required. SAICA (2014:18) refers to a scenario that is contextualised as being “sufficiently problem rich so as to require the prospective CA to exercise judgement in choosing between alternative approaches to the problem in determining an appropriate solution”.

It should be noted that the competency framework sets out the competencies required at point of entry into the profession, in other words, at the end of the fourth year of study. SAICA does not prescribe the competencies or levels of competency required at each of the undergraduate year levels. The SAICA levels of proficiency are illustrated in the following table:

Table 9.4: The SAICA levels of proficiency

Level A – Awareness	Level I – Initiates the task	Level X – Completes the task
• Key ideas and principles • Technical expertise or detailed knowledge not required • Identifies and explains significance and relevance	• Performs task on preliminary basis • Understands requirements of the task • Identifies and applies the required professional skills • Intermediate understanding • Basic quantitative and qualitative analysis (excl. complex calculations) • Integration straightforward	• Completes all elements of task • Problem is clearly identified and thoroughly analysed, or situation is evaluated and useful recommendations are made • Relevant pervasive skills and reflective capacity demonstrated at advanced level • Advanced understanding • Technical skills include complex calculations and concluding on an appropriate course of action

Source: SAICA (2014:19)

It should be noted that, as with Bloom's Taxonomy, these levels of proficiency form a hierarchy and, therefore, competency at a higher level such as level X assumes that levels A and I have already been mastered (SAICA, 2014:19).

In analysing the SAICA levels of proficiency against the cognitive levels of the revised Bloom's Taxonomy (as set out in paragraph 4.3.3.2, page 88) the following came to the fore:

Table 9.5: Relating SAICA's levels of proficiency to the cognitive levels of the revised Bloom's taxonomy

SAICA description	Related Bloom's cognitive level	Discussion
LEVEL A – Awareness		
• Key ideas and principles • Technical expertise or detailed knowledge not required • Identifies and explains significance and relevance	Remember/ Understand	Key ideas and principles fall within the knowledge category of Bloom's Taxonomy. No verb is mentioned here, but the verbs "identify" and "explain" are mentioned in the last bullet. Identifying and explaining significance and relevance without detailed knowledge or technical expertise required fall within the comprehension (understand) level of the taxonomy.
LEVEL I – Initiates the task		
• Performs task on preliminary basis • Understands requirements of the task • Identifies and applies the required professional skills • Intermediate understanding • Basic quantitative and qualitative analysis (excl. complex calculations) • Integration straightforward	Apply	On this level students are expected to identify an applicable approach to a problem by understanding the requirements of the task at hand. Only straightforward integration and an intermediate understanding is required. Although qualitative and quantitative analysis is required, complex calculations are excluded at this level. All of the above places SAICA level I at the application (apply) level of Bloom's Taxonomy.
LEVEL X – Completes the task		
• Completes all elements of task • Problem is clearly identified and thoroughly analysed, or situation is evaluated and useful recommendations are made • Relevant pervasive skills and reflective capacity demonstrated at advanced level	Analyse/ Evaluate/ Create	The identification of the problem in a complex situation requires the learner to analyse the situation. Evaluating and making recommendations fall within the evaluate category of Bloom's Taxonomy. Reflective capacity mentioned here also refers to evaluate. The fact that this level refers to complex problems and that the learner is expected to develop an appropriate course of action also place it in the create category.

SAICA description	Related Bloom's cognitive level	Discussion
- Advanced understanding - Technical skills include complex calculations and concluding on an appropriate course of action		

Source: Researcher

It is clear from the above analysis that the SAICA levels of proficiency correspond with the levels of the revised Bloom's Taxonomy as follows:

Table 9.6: Classification of SAICA levels of proficiency

SAICA level of proficiency	Bloom's cognitive level	Classification
Level A – Awareness	Remember and understand	Lower order
Level I – Initiates the task	Apply	Intermediate order
Level X – completes the task	Analyse, evaluate and create	Higher order

Source: Researcher

The above classification is in accordance with Crowe *et al.* (2008:370) who suggested that levels 1 and 2 be regarded as lower-order and levels 4 to 6 as higher-order outcomes. They also suggested that apply (level 3) be the link between the lower-order and the higher-order outcomes. Level 3 (apply) was, therefore, classified as intermediate and serves as the link between lower-order and higher-order levels.

Discussion

Based on the literature review and the guidelines provided by NWU Academic Support Services and SAICA, three categories of cognitive levels are proposed for accounting disciplines, namely higher order, intermediate and lower order. This is in line with the levels proposed by SAICA and with the literature (Crowe *et al.*, 2008).

The proposed categories of cognitive levels for modules in CA programmes are presented in Table 9.7. The percentages proposed for the spread between the cognitive levels are based on the guidelines provided by NWU (2013:11), as the NWU was used as case study for this thesis. The 50% guideline for the third-year level could move up to 60%, as the 20% proposed for the “apply” level includes “difficult application” (NWU, 2013:12). The

percentages proposed in the literature (paragraph 4.5, page 97) are much lower than those provided by NWU and, therefore, the guidelines proposed by NWU were employed.

Table 9.7: Proposed guidelines for cognitive levels of learning for CA programmes

	Lower order	Intermediate	Higher order
	Remember Understand	Apply	Evaluate Create
NQF 6 (2 nd year)	60%		40%
NQF 7 (3 rd year)	30%	10%/20%	50%/60%
NQF 8 (4 th year)	20%		80%

Source: Researcher; Adapted from NWU(2013:11)

9.2.4 Framework for applying the revised Bloom's Taxonomy in the MAF discipline

Based on the above discussions (paragraphs 9.2.1 to 9.2.3) the following framework is proposed for applying the revised Bloom's Taxonomy in the MAF discipline. The framework suggests the cognitive levels as discussed in paragraph 9.2.3 (page 207), the discussion regarding the interpretation of the revised Bloom's Taxonomy in the MAF discipline (paragraph 9.2.1, page 201) and the action verbs associated with accounting education as identified from the literature (paragraph 9.2.2, page 204).

Table 9.8: Interpretation of the revised Bloom's Taxonomy for MAF

Cognitive level					
Lower order		Intermediate	Higher order		
Level 1: Remember	Level 2: Understand	Level 3: Apply	Level 4: Analyse	Level 5: Evaluate	Level 6: Create
Recall information without attributing any meaning	Relating and organising information previously acquired	Use information, rules or principles to solve a problem or use known theory in a different context	Deconstruct a complex problem into parts and understand how the parts fit together	Qualitative or quantitative judgements about value of ideas, solutions, or methods based on certain criteria and arguments	Use different elements to create a new structure Combine new material with previous experience Use several sources and put them together
Demonstrate by					
Define and recall	Translation, interpretation and extrapolation	Applying theories or methods Choosing appropriate methods (simple)	Calculations, analysis, classifications and calculations where more than one method is involved	Discussions, arguments or reasoning to perform analysis or make decision	Applying more than one technique, adjustments, projections or recalculations to create a plan, solution or structure
Typical requirements regarding information					
Pure recall	Translate or interpret or make predictions based on information	Identify and use information to solve problem	Extraction of key information from case study Organising information given in the question by deconstruction Extracting information from a case study	Organise information from various sources Decide whether information is relevant Judge information for accuracy	Large amounts of information in complex case studies

Typical requirements regarding techniques or methods					
Define, list or explain a technique or method	Contrast techniques or methods or provide strengths and weaknesses	Apply a given technique to a problem Choose the appropriate technique (simple)	Choose a method or technique by analysing the structure of information	Identify various techniques or methods and judge appropriateness of each to solve problem Identify various methods to solve a problem Choose a method most suitable to solve a problem Critique, contrast and compare methods	Devise or create a method to solve the problem
Typical requirements					
Pure recall	Contrasting	Apply technique if technique is given	Some sort of inference	Some sort of judgement	Devise something new
Examples of tasks					
	Translate into other terms Interpret graphs, charts or tables Make estimates based on trends	Apply known techniques to known or unknown situations to solve a problem	Distinguish relevant information from non-relevant information or determine how events fit or function within an organisation	Judging the appropriateness of a procedure to solve a problem or accomplish a task	Producing a report Planning a procedure to solve a problem or accomplish a task

Typical question type					
Simple question	Simple question	Known or unknown situation with limited amount of information	Unknown situation with more information	Unknown situation with larger volume of information	More complex problems Large volumes of information
Typical accounting education action verbs					
Calculate, Define, Describe, Explain, Identify, List, Memorise, Name, Order, Outline, Recall, Recognise, Select, State, Write	Classify, Comprehend, Convert, Demonstrate, Demonstrate appreciation, Demonstrate awareness, Demonstrate understanding, Describe, Discuss, Distinguish, Estimate, Explain, Express, Extend, Generalise, Give examples, Identify, Illustrate, Infer, Interpret, Paraphrase, Predict, Recognise, Restate, Rewrite, Summarise, Translate, Understand	Apply, Arrange, Assign, Calculate, Change, Choose, Complete, Compute, Construct, Demonstrate, Describe with evaluation, Discover, Employ, Interpret, Manipulate, Modify, Operate, Perform, Prepare, Reconcile, Relate, Report, Schedule, Select, Show, Solve, Tabulate, Use, Utilise, Write	Analyse, Assess, Break down, Calculate, Categorise, Compare, Construct, Contrast, Criticise, Differentiate, Discuss, Distinguish, Estimate, Examine, Experiment, Identify, Infer, Interpret, Investigate, Manipulate, Model, Order, Prioritise, Produce, Question, Relate, Reorganise, Review, Revise, Separate, Set up, Summarise, Tell, Write	Advise, Appraise, Argue, Assess, Choose, Compare (complex), Conclude, Contrast (complex), Criticise, Defend, Discriminate, Estimate, Evaluate, Explain, Interpret, Judge, Justify, Predict, Rate, Recommend, Relate, Select, Summarise, Support, Value	Arrange, Assemble, Collect, Combine, Compose, Construct, Create, Design, Develop, Devise, Formulate, Generate, Integrate, Invent, Manage, Organise, Plan, Propose, Rearrange, Reorganise, Reconstruct, Relate, Resolve, Revise, Set up, Solve, Summarise, Synthesise, Tell, Write

Source: Researcher

Discussion: example of application of framework

In Table 9.8 the proposed criteria for analysis and categorisation of learning outcomes and assessment questions in MAF was presented. Following on this table is a discussion of how the criteria can be applied in analysing questions in MAF.

Determining the value of a company is a frequent requirement in the subject of Financial Management. The following question on valuations will be used as an example of the application of Table 9.8.

Required: Determine the value of 50% of the shares in Company A

In order to answer a valuation question on CTA level (fourth year or NQF level 8) all cognitive levels need to be engaged. The student has to have mastered the lower levels in order to have reached the higher cognitive levels. Usually a valuation question contains large volumes of information. The student is, therefore, required to deconstruct the problem into manageable pieces (level 4: analyse). Following the headings in the framework the analysis can be done as follows:

Demonstrate by:

At CTA level a valuation question involves applying more than one possible technique, making adjustments, projections or recalculations. The student also has to create a structure in order to determine the value of the company. This is at level 6 (create).

Typical requirements regarding information:

In such a question the student has to differentiate between relevant and irrelevant information (level 4: analyse). This information also needs to be organised in order to perform the necessary calculations (level 4: analyse). Valuation questions at CTA level usually contain large amounts of information in complex case studies (level 5: evaluate).

Typical requirements regarding techniques or methods:

Different techniques or methods to determine the value of the equity shares have to be identified and the appropriateness of the application of these techniques to the specific problem has to be judged, which is at level 5. Although students are often required to prepare a report (level 6: create), this is not the only level 6 cognitive skill involved. The whole process of planning or devising a method or procedure for solving the problem is at level 6.

Examples of tasks:

There are several techniques that can be applied in order to perform a valuation. Judging the appropriateness of each technique in a given scenario is at level 5 (evaluate). A report is often required in a valuation question at CTA level. This is a typical requirement at level 6 (create) of the revised Bloom's Taxonomy. A complex valuation question also requires the student to plan a procedure to solve the problem, which is also at level 6 (create).

Typical question type:

A typical valuation question at CTA level will be a complex question with large volumes of information. This is typical of a question at level 6 (create).

Typical accounting education action verbs:

Typical verbs used in a valuation question are "calculate" (level 3 or 4), "advise" (level 5), "value" (level 5) and "prepare a report" (level 6).

A complex valuation question would, therefore, typically be categorised at the highest level of cognitive learning, which is level 6 (create).

9.3 MATCHING SAICA LEARNING OUTCOMES WITH THE COGNITIVE LEVELS OF BLOOM'S TAXONOMY

This section attempts to address the secondary objective 1.5.2.8 (page 12), namely to evaluate the application of pertinent educational-level requirements by evaluating the cognitive levels of the competencies in the SAICA competency framework by applying a developed framework for application of the taxonomy of learning in the MAF discipline.

The framework that was developed for applying the revised Bloom's Taxonomy in the MAF discipline (paragraph 9.2.4, page 212) was used to analyse the detailed learning outcomes in the SAICA competency framework. Learning outcomes were matched with the associated cognitive levels of the revised Bloom's Taxonomy by analysing the typical requirements of an outcome, as well as the typical action verbs in the outcome as set out in the proposed framework for applying the revised Bloom's Taxonomy in the MAF discipline. As advised by Jones *et al.* (2009:3), the whole sentence was reviewed, not just the verb, in order to determine the cognitive level of each outcome. A discussion pertaining to how the outcomes were classified is presented in each of the sections on Financial Management and Management Accounting Decision Making and Control.

9.3.1 SAICA Financial Management outcomes

In this section the competencies for Financial Management as set out in the competency framework of SAICA (2014:98) are categorised according to the six levels of the revised Bloom's Taxonomy and the associated cognitive levels of learning. The specific competencies listed for Financial Management in the competency framework are similar to the learning outcomes of a study unit in an academic module.

The results of the analysis are presented in Table 9.9 below.

Table 9.9: Matching SAICA learning outcomes for Financial Management with the revised Bloom's Taxonomy

Competency		Verbs	SAICA level	Bloom's level
V-1	Establishes or evaluates overall financial goals			
V-1.1	Understands financial objectives Gains an understanding of the financial objectives that form part of the entity's finance strategy in the light of the entity's overall objective, vision, mission and mandate Gains an understanding of the interrelationship of the financial objectives with the other resources and capitals which impact on the entity's business model	Understand Understand	A	Understand Understand
V-1.2	Understands the legal form and structure of the entity Prepares a preliminary analysis of the appropriate forms of organisation for fulfilling these objectives in the light of the entity's stated financial objectives	Analyse	A	Analyse
V1.3	Identifies ways in which ownership can change Identifies ways the ownership of an entity can be restructured Explains some of the issues that can arise from a change in control	Identify Explain	A	Understand Understand
V2	Analyses the value of a business			
V2.1	Analyses the entity's current financial situation and considers factors impacting on the future outlook of the entity Performs financial analysis, interprets the results, and draws conclusions as to the entity's present and forecasted financial situation Identifies the influence of the entity's competitive, economic, social, political and internal environment on the results and forecasts	Analyse Interpret Conclude Identify	I	Analyse Analyse Evaluate Analyse
V2.2	Evaluates the appropriateness and impact of the growth strategies formulated and adopted by the entity Evaluates the different growth strategies which an entity could implement, taking cognisance of the entity's overall objectives, mission and mandate and the creation of value	Evaluate	I	Evaluate

V2.3	Estimates the value of the business Using different valuation methods, analyses, calculates, estimates, forecasts a plausible range of values for a business for review and input by others Identifies the critical assumptions and facts that underlie the valuation estimate, for review and input by others	Analyse Calculate Estimate Forecast Identify	X	Analyse Apply Evaluate Create Analyse
V2.4	Analyses and evaluates a proposed merger, acquisition or divestiture Analyses, on a preliminary basis, the risks and financial implications of a proposed start-up, expansion, merger, acquisition, strategic alliance or divestiture Identifies, based on the analysis, the form of the transaction	Analyse Identify	I	Analyse Analyse
V3	Plans and monitors an entity's financing			
V3.1	Monitors cash flow Monitors annual, monthly, weekly and, if necessary, daily cash flow, to ensure that the entity's financial obligations are met and performance objectives are achieved Identifies cash shortfalls (or excesses) and advises on suitable finance (or investment) options Develops strategies concerning an entity's short-term/long-term cash position, in accordance with the entity's strategic plan	Monitor Identify Advise Develop	X	Evaluate Analyse Evaluation Create
V3.2	Analyses the entity's working capital Develops strategies and monitors the entity's working capital	Develop Monitor	X	Create Evaluate
V3.3	Identifies and evaluates sources of funds Understands the workings of capital and money markets and an awareness of trends in capital markets at a basic level Identifies possible sources of funds through capital markets, private investors, personal contributions, bank financing and/or government assistance taking into consideration the size and stage of development of the entity Describes the role, characteristics, advantages and disadvantages of various sources of financing, suggests which source of financing is most appropriate in the circumstances (e.g., debt, equity, leasing), taking the entity's financial strategies and objectives into account	Understand Awareness Identify Describe Suggest	I	Understand Understand Understand Understand Evaluate

	Evaluates financing alternatives considering the consequences, relative costs and benefits, and implications for operational and future financing decisions (including any tax implications) suitable for the entity based on its strategies Develops a portion of a financial proposal or financing plan that is supported by well-reasoned assumptions and up-to-date information Identifies the strengths and weaknesses of the financial proposal or financing plans Reviews the alignment of proposal or plan with strategic objectives	Evaluate Develop Identify Review		Evaluate Create Analyse Evaluate
V3.4	Evaluates decisions related to distribution of profits Evaluates the manner in which an entity distributes profits to shareholders Incorporates tax considerations Recommends the most appropriate method to distribute profits	Evaluate Incorporate Recommend	I	Evaluate Apply Evaluate
V3.5	Evaluates the entity's cost of capital and capital structure Determines an entity's cost of capital using a range of methodologies Evaluates the capital structure of an entity (quantitatively and qualitatively)	Determine Evaluate	X	Analyse Evaluate
V4	Manages financial risks as part of the entity's risk management policy			
V4.1	Develops and evaluates risk management policies related to financial risk Develops and evaluates risk management policies that relate specifically to financial risk (e.g., hedging policy, investment policy and insurance coverage), so that policies are consistent with the entity's overall risk management policies Monitors exposure in order to manage the level of these financial risks Monitors changes in the economy (e.g., changes in interest rates, foreign exchange, employment, and fiscal and monetary policy) and changes within the entity, assessing their impact on the entity's finances Recommends changes to risk management policies in line with the assessment of the impact on the entity's finances	Develop Evaluate Monitor Monitor Recommend	I	Create Evaluate Evaluate Evaluate Evaluate

V4.2	Evaluates the use of derivatives Identifies the significant risks within an entity, including interest rate risks, foreign exchange risks and commodity risks Analyses various derivative instruments that are available to mitigate risks Identifies the need for, and evaluates on a preliminary basis, the usefulness of forward and future contracts, swaps, put and call options (including warrants) and other derivatives, in meeting the entity's objectives and staying within its risk tolerance level Suggests appropriate derivative instruments to mitigate risks Differentiates between the use of derivatives for hedging and speculation purposes	Identify Analyse Identify Evaluate Suggest Differentiate	I	Analyse Analyse Analyse Evaluate Evaluate Analysis
V5	Develops or analyses business plans and financial proposals			
	Gains an understanding of the intended purpose and audience and takes them into account when preparing the business plan or financial proposal Ensures that the plan or proposal contains relevant and accurately prepared information by – - identifying and explaining the business strategy and strategic plan - identifying the strengths and weaknesses of the plan or proposal - determining the resources needed to complete the plan or proposal - calculating the anticipated costs and recoveries - identifying suitable sources of financing (e.g. debt, issuance of shares, additional private investors) Identifies clearly all underlying assumptions made	Understand Prepare Identify Explain Identify Determine Calculate Identify Identify	A	Understand Create Understand Understand Analyse Apply Apply Analyse Understand
V6	Appraises capital investment opportunities			
V6.1	Evaluates the investment decision Identifies and analyses the opportunities (including the growth strategies of the entity), risks, financial and sustainability implications of a proposed start-up or expansion involving the replacement or acquisition of a capital asset, including qualitative and quantitative considerations Applies appropriate capital budgeting techniques in the analysis of the investment decision, and adequately considers the following issues	Identify Analyse Apply	X	Understand Analyse Evaluate
V6.2	Evaluates the alternative of asset-specific finance Evaluates the cost of asset-specific finance such as a loan, instalment sale and lease as an	Evaluate	I	Evaluate

	alternative to the entity's usual method of financing acquisitions, and the implications thereof on the decision to invest in the proposed expansion / asset replacement			
V6.3	Considers relevant structural and governance issues Suggests, based on analysis performed – - the form of the transaction through franchising / alliance / joint venture) - financing options and terms - systems, information, confidentiality and disclosure requirements - key risks and rewards and potential fit with strategies - due diligence procedures - conflict of interest issues	Suggest Analyse	A	Evaluate Analyse
V7	Identifies or advises a financially troubled business			
	Identifies a financially troubled business Prepares a preliminary analysis of – - the severity of the situation - the causes of financial difficulty - the potential for the success or failure of proposed recovery plans and suggests an appropriate course of action Examines the possible courses of action to rectify the situation Identifies the tax implications of the possible courses of actions Contributes to the development of a preliminary business recovery plan, including future-oriented suggestions and direction for the entity's long-term health Suggests appropriate means of refinancing the business Understands business rescue principles as set out in the Companies Act	Identify Analyse Suggest Examine Identify Develop Suggest Understand	A	Analyse Analyse Evaluate Analyse Understand Create Evaluate Understand

Source: SAICA (2014:98-103)

Discussion pertaining to the categorisation of SAICA learning outcomes:

In the following section the reasoning behind the classification of some of the SAICA learning outcomes for Financial Management is presented:

V1.2 The phrase “prepares an analysis” was interpreted as “analyse” throughout the document.

V1.3 Although the verb “identify” is listed under both remembering and understanding in the verb list, the outcome in this instance requires more from the student than merely remembering. The student is expected to relate and organise information that has already been acquired. The applicable level of Bloom’s Taxonomy is, therefore, indicated as “understand”.

V2.1 The verb “perform” relates to “perform financial analysis”. With analysis and interpretation of financial statements, the interpretation of the results requires the student to deconstruct the components of a problem and to show an understanding of how the components fit together. This skill is at the “analyse” level of the revised Bloom’s Taxonomy.

The verb “identify” requires more than merely remembering or understanding. The student has to deconstruct a problem and determine how a specific event (the company) fits into a structure (external and internal environment). Therefore, the outcome is categorised as “analyse”.

V-3.3 The verb “suggest” is not in the list of accounting education action verbs, but is similar to the verb “recommend” which is in the evaluation (evaluate) category of the taxonomy.

In the last outcome “Reviews the alignment of proposal or plan with strategic objectives”, the requirement seems to be to evaluate the plan or proposal against certain criteria such as the strategic plan and, therefore, this outcome is categorised as “evaluate”.

V-3.4 The verb “incorporate” does not appear in the list of verbs compiled from the literature. It was classified by the researcher as “apply”, because the students are expected to use relevant information they have acquired in another area (taxation) and demonstrate the accurate use thereof in solving a problem.

V-3.5 The verb “determine” does not appear in the list of verbs compiled. A synonym for the word “determine” in this context could be “calculate” and, thus, the outcome could be classified as “apply”. However, the student is expected to apply a range of methodologies in order to solve the problem (calculating the cost of capital) and “analyse” could, thus, also be a suitable classification.

V4.1 Only the verb “monitor” was categorised, as it is the opinion of the researcher that “assessing” merely confirms the cognitive level of the verb “monitor”, which is categorised to be at the “evaluate” level.

V-6.1 At CTA level the student is required to be able to organise information from different sources and use discussions, arguments and reasoning in a capital budgeting decision. Therefore, even though the verb in this case is “apply”, this outcome is classified as evaluation (evaluate). The heading of this section (6.1) is “Appraises capital investment decisions” and hints towards evaluation. The verb used could, therefore, have been “appraise”.

9.3.1.1 ***Average Bloom rating***

The average Bloom rating for the detailed SAICA Financial Management outcomes were calculated as 4. This calculation was done by applying the double-weighted average method as explained in paragraph 7.6.3.1 (page 155). The rating of 4 is close to the proposed rating of 4.4 for the CTA level (paragraph 9.3.1.1, page 225). The proposed rating of 4.4 was calculated as follows:

The NWU guideline for fourth-year level modules states that 20% of outcomes should be at the lower and intermediate cognitive level, and 80% should be at the higher cognitive level. The lower and intermediate cognitive levels combined have an average Bloom rating of 2 $[(1+2+3)/3]$. The higher cognitive level has an average Bloom rating of 5 $[(4+5+6)/3]$. Therefore, the average Bloom rating for a fourth-year module should be 4.4 $[(2 \times 20\%) + (5 \times 80\%)]$.

9.3.1.2 ***Distribution of higher-order and lower-order cognitive levels***

Based on the analysis above, the distribution of the SAICA learning outcomes for Financial Management between the different levels of Bloom’s Taxonomy is as follows:

Table 9.10: Distribution of SAICA Financial Management outcomes between the levels of the revised Bloom's Taxonomy

Bloom's level	% of SAICA learning outcomes			NWU guideline
Remember	0.0%	10.2%	14.5%	20%
Understand	10.2%			
Apply	4.3%	4.3%		
Analyse	31.7%	85.4%	85.4%	80%
Evaluate	41.1%			
Create	12.6%			

Source: Researcher

The 85.4% of the SAICA outcomes for Financial Management for the higher-order cognitive levels (analyse, evaluate, create) is higher than that proposed by the researcher (80%) based on the NWU guidelines (paragraph 9.2.3, page 207). The proposed percentage for the lower-order and intermediate outcomes (remember, understand and apply) at fourth-year level is 20%, whereas that of SAICA is 14.5%.

9.3.1.3 **SAICA verb frequencies**

The verbs that SAICA tend to use in the learning outcomes for Financial Management are listed below (Table 9.11), and the frequency of each verb and the level at which it was placed are indicated.

Table 9.11: SAICA verb frequency for Financial Management

Bloom 1 Verb	Freq.	Bloom 2 Verb	Freq.	Bloom 3 Verb	Freq.
		Be aware of	(1x)	Calculate	(2x)
		Describe	(1x)	Determine	(1x)
		Explain	(2x)	Incorporate	(1x)
		Identify	(6x)		
		Understand	(5x)		

Bloom 4 Verb	Freq.	Bloom 5 Verb	Freq.	Bloom 6 Verb	Freq.
Analyse	(8x)	Advise	(1x)	Develop	(5x)
Determine	(1x)	Apply (to make decision)	(1x)	Forecast	(1x)
Differentiate	(1x)	Conclude	(1x)	Prepare	(1x)
Examine	(1x)	Estimate	(1x)		
Identify	(10x)	Evaluate	(7x)		
Interpret	(1x)	Monitor	(4x)		
		Recommend	(2x)		
		Review	(1x)		
		Suggest	(5x)		

Source: Researcher

The verb “identify” is listed 16 times (10 times for level 4 and six times for level 2) in the Financial Management section of the SAICA competency framework. This is the highest frequency of occurrence of all the verbs used. In the table of verbs compiled from the literature on accounting education, “identify” is categorised in the knowledge level and comprehension level of Bloom’s Taxonomy. In the context of the learning outcomes in which it is used in the competency framework, the verb is, however, at a higher level than knowledge and, in most instances, was classified as “analyse”.

The other verbs that were used often was “evaluate” (seven times) and “analyse” (eight times). From the literature it was concluded that the verb “understand” should be avoided in learning outcomes, as it is difficult to measure (paragraph 4.6, page 99). It is interesting to note that SAICA uses “understand” five times in their learning outcomes for Financial Management. This represents 7% of the total number of verbs used (71 verbs).

9.3.2 SAICA Management Decision Making and Control outcomes

In the next section the detailed specific competencies listed for Management Decision Making and Control in the competency framework (SAICA, 2014:116) are matched to the six levels of the revised Bloom’s Taxonomy. The results of the analysis are presented in Table 9.12 below:

Table 9.12: Matching SAICA learning outcomes with the revised Bloom's Taxonomy for Management Decision Making and Control

Competency in Management Decision Making and Control		Verbs	SAICA level	Bloom's level
VI-1	Identifies and analyses factors influencing the financial performance of an entity			
VI-1.1	Identifies management's information needs and the entity's key performance indicators Determines what information is relevant and useful to both management and the governing body for the purposes of decision making and control based on the entity's mission, vision and strategies and competitive position, economic, competitive and operating environments, products and governance structure Identifies key performance indicators, including any sector-specific tracking needs Describes and gives examples of non-financial key performance indicators that might be suitable for evaluating the entity's effectiveness Considers the applicability of the following performance measurement and control techniques and tools, including...	Determine Identify Describe with example Consider	I	Evaluate Analyse Understand Evaluate
VI-1.2	Evaluates the design of the entity's responsibility accounting system Gains an understanding of the arrangement of an entity's governance structure and responsibility accounting centres Evaluates the impact of the structures on performance evaluation and incentivisation, in the context of the entity's strategies and enhancement of shareholder wealth and fulfilment of stakeholder expectations Evaluates the effectiveness and appropriateness (including strengths, weaknesses and effect of accounting distortions) of the performance incentive mechanisms (including measures of profit, return on investment, residual income and economic value added) and makes suggestions for improvement Considers the creation of medium- to long-term value for stakeholders	Understand Evaluate Evaluate Suggest Consider	X	Understand Evaluate Evaluate Evaluate Evaluate

VI-1.3	Analyses the financial performance of an entity and makes and/or evaluates recommendations for improvement Analyses, evaluates and explains the financial performance of the entity, or division, branch, department, etc., in the context of the entity's product, competitive position, strategic plans, operations and activities during the period(s) and with consideration to cash flows, business risks, other financial risks, working capital policies, financial management principles, and management control mechanisms in place, where appropriate Identifies and uses financial analysis tools and methods appropriate to the purpose of the evaluation, including • ratio and trend analysis • CVP and sensitivity analysis • appropriate categorisation, allocation and presentation of financial information Identifies, determines, explains and excludes the effect of any distortions resulting from the application of IFRS or the entity's internal or external accounting policies on the financial performance of the entity Identifies reasons for any areas of strength or concern in performance Identifies areas and makes and/or evaluates suggestions for potential improvement in profitability, management of resources, enhancement of the value of the (or maximisation of service delivery outcomes)... Conducts further analysis of recommendations, utilising decision-making techniques, and identifies further relevant financial considerations and appropriate cost management techniques (including, but not limited to, cost driver identification and analysis, the behaviour and relevance of costs to long-term decision making and control) and control mechanisms	Analyse Evaluate Explain Identify Use Identify Determine Explain Exclude Identify Identify Evaluate Suggest Analyse Identify	X	Analyse Evaluate Evaluate Analyse Apply Analyse Evaluate Analyse Apply Analyse Evaluate Evaluate Analyse Analyse

VI-4.2	Identifies and analyses elements of business decisions subject to uncertainty, volatility or inaccuracy Performs sensitivity analysis (CVP analysis, including break-even and margin of safety calculations) on key variables affecting the financial outcome of the decision, and interprets the result of the calculation Incorporates the possibility of various outcomes into the decision-making process, including the use of probabilities and expected values Identifies appropriate basis on which to allocate indirect costs to cost objects Considers the applicability of activity-based costing and identifies appropriate cost drivers and information content for both short- and long-term decision making in accordance with the entity's strategic plans	Perform Interpret Incorporate Identify Consider the applicability	X	Apply Analyse Create Analyse Evaluate
VI-4.3	Identifies and evaluates the significance of the qualitative factors that impact the decision Identifies and distinguishes between short- and long-term implications associated with the proposed business decision and identifies their potential financial implications, including, but not limited to, the application of the time value of money, net present value and ABC techniques Identifies opportunities and risks related to or arising from the proposed decision, including but not limited to operational, strategic, financial, legal and environmental opportunities and risks Considers the consistency of the proposed decision with the enterprise's strategic objectives and plans Evaluates alternatives and recommends a course of action considering both quantitative and qualitative factors	Distinguish Identify Identify Consider consistency Evaluate Recommend	X	Understand Analyse Analyse Evaluate Evaluate Evaluate

Source: SAIICA (2014:116-122)

Discussion pertaining to the categorisation of SAICA learning outcomes:

In the following section the reasoning behind the classifications of some of the SAICA learning outcomes for Management Decision Making and Control are presented:

VI-1.1 The verb “determine” does not appear in the list of accounting education action verbs, but has been categorised as “evaluation” by authors in other disciplines (Imri, 1995; Swart, 2010:259). The verb “determine” in this learning outcome requires the student to judge information in order to decide whether it is relevant or useful and, therefore, involves the ability to judge the value of material. Thus, the verb “determine” is classified as “evaluate”.

The verb “describe” is in both the remember and understand sections of the accounting education action verb list. However, in this context, the student is required to relate and organise information and, therefore, the verb is categorised as “understand”. This categorisation is confirmed by the phrase “gives examples” in the same sentence, which is in the understand category.

VI-1.3 The verb “explain” is listed in the categories of remember, understand and evaluate. In this scenario “explain” is categorised as “evaluate”, because it involves the evaluation of the performance of a company, and the student is required to judge a situation based on some criteria.

VI-2.1 The verb “review” is listed in the category “understand” in the list of accounting education verbs. The researcher believes that, in this context, the verb “review” pertains to the level of evaluation, as the student is required to evaluate the budget against established criteria.

VI-2.3 The verb “investigate” does not appear on any of the lists of action verbs that were consulted in the literature review. A synonym for investigate is “examine” and examine is listed under analysis in the list of accounting education action verbs. Therefore, the verb “investigate” in this context is categorised as “analyse”.

VI-3.2 Although the verb “identify”, which could be at an analysis level, is used by SAICA, this learning outcome is categorised at evaluation (evaluate) level. In order to “identify” the appropriate cost allocation basis, the student has to identify and judge all the appropriate methods; for this reason, the learning outcome is categorised as evaluation (evaluate). The verb is also listed as “evaluate”. The researcher believes that this is acceptable, as the verb “evaluate” is used in the heading of this outcome.

VI-4.2 The verb “incorporate” does not appear in the list of verbs for accounting education, however, it was classified as being in the synthesis level (create) by Towns (2010:93).

“Consider the applicability” was categorised as “evaluate”, because the student is required to find the most suitable solution to a problem based on certain criteria.

9.3.2.1 *Average Bloom rating*

If the Bloom rating is calculated based on the verbs used in the detailed outcomes, as was done for Financial Management, the rating is 4.4. This rating is in line with the proposed rating of 4.4 at CTA level. The rating was calculated by applying the double-weighted average method as explained in paragraph 7.6.3.1 (page 155).

9.3.2.2 *Higher-order and lower-order cognitive level distribution*

Based on the analysis above, the distribution of the SAICA learning outcomes for Management Decision Making and Control between the different levels of the revised Bloom's Taxonomy is as follows:

Table 9.13: Distribution of SAICA Management Accounting outcomes between the levels of the revised Bloom's Taxonomy

Bloom's level	% of SAICA learning outcomes			NWU guideline
Remember	0.2%	3.4%	8.9%	20%
Understand	3.2%			
Apply	5.5%	5.5%		
Analyse	26.0%	90.1%	90.1%	80%
Evaluate	54.6%			
Create	9.5%			

Source: Researcher

As with Financial Management the percentage of outcomes in the higher-order cognitive levels, when categorised according to the verbs, is higher than the proposed percentage (Table 9.7, page 212). For Management Decision Making and Control, it is even higher than for Financial Management (90.1% as opposed to 85.4%). The percentage of the outcomes pertaining to the lower-order and intermediate-order cognitive levels is 8.9%. This is much lower than the proposed 20%.

9.3.2.3 *SAICA verb frequencies*

The verbs used by SAICA in the Management Decision Making and Control learning outcomes are listed below with an indication of the frequency and the associated Bloom level.

Table 9.14: SAICA verb frequency for Management Decision Making and Control

Bloom 1 Verb	Freq.	Bloom 2 Verb	Freq.	Bloom 3 Verb	Freq.
Describe	(1x)	Describe	(1x)	Determine	(1x)
		Distinguish	(1x)	Document	(1x)
		Explain	(1x)	Exclude	(1x)
		Identify	(1x)	Perform	(2x)
		Understand	(2x)	Prorate	(1x)
				Rank	(1x)
				Reconcile	(1x)
				Report	(1x)
				Solve	(1x)
				Use	(1x)
Bloom 4 Verb	Freq.	Bloom 5 Verb	Freq.	Bloom 6 Verb	Freq.
Analyse	(6x)	Advise	(1x)	Design	(2x)
Discuss	(1x)	Consider	(10x)	Develop	(1x)
Explain	(1x)	Determine	(5x)	Incorporate	(1x)
Identify	(17x)	Evaluate	(12x)	Prepare	(1x)
Interpret	(2x)	Explain	(1x)		
Investigate	(1x)	Recommend	(6x)		
		Review	(1x)		
		Suggest	(4x)		

Source: Researcher

As with the Financial Management outcomes, the verb “identify” is used most frequently by SAICA in the Management Decision Making and Control outcomes (18 times). Other verbs that are used frequently are “consider” (10 times) and “evaluate” (12 times).

9.3.3 SAICA MAF outcomes

In the following section the above results for Financial Management and Management Decision Making and Control are presented for the combined discipline of MAF. The exposure to the different Bloom levels for the SAICA outcomes for MAF as a whole is as follows:

Table 9.15: Distribution of SAICA MAF outcomes between the levels of the revised Bloom's Taxonomy

Bloom's level	% of SAICA learning outcomes			NWU guideline
Remember	0.1%	6.6%	12.1%	20%
Understand	6.5%			
Apply	5.5%	5.5%		
Analyse	28.7%	87.9%	87.9%	80%
Evaluate	48.2%			
Create	11.0%			

Source: Researcher

As expected from the results of Financial Management and Management Decision Making and Control, the higher-order learning outcomes are more (87.9%) than those proposed by the researcher based on the guidelines of NWU (80%).

The following is a summary of the verbs used in the competency framework of SAICA for the combined discipline of MAF:

Table 9.16: SAICA verb frequency for MAF

Bloom 1 Verb	Freq.	Bloom 2 Verb	Freq.	Bloom 3 Verb	Freq.
Describe	(1x)	Be aware of	(1x)	Calculate	(2x)
		Describe	(2x)	Determine	(2x)
		Distinguish	(1x)	Document	(1x)
		Explain	(3x)	Exclude	(1x)
		Identify	(7x)	Incorporate	(1x)
		Understand	(7x)	Perform	(2x)
				Prorate	(1x)
				Rank	(1x)
				Reconcile	(1x)
				Report	(1x)
				Solve	(1x)
				Use	(1x)

Bloom 4 Verb	Freq.	Bloom 5 Verb	Freq.	Bloom 6 Verb	Freq.
Analyse	(14x)	Advise	(2x)	Design	(2x)
Determine	(1x)	Apply	(1x)	Develop	(6x)
Differentiate	(1x)	Conclude	(1x)	Forecast	(1x)
Discuss	(1x)	Consider	(10x)	Incorporate	(1x)
Examine	(1x)	Determine	(5x)	Prepare	(2x)
Explain	(1x)	Estimate	(1x)		
Identify	(27x)	Evaluate	(19x)		
Interpret	(3x)	Explain	(1x)		
Investigate	(1x)	Monitor	(4x)		
		Recommend	(8x)		
		Review	(2x)		
		Suggest	(9x)		

Source: Researcher

Again the verb “identify” is used most frequently. Other verbs that are used often are “understand” (seven times), “analyse” (14 times), “consider” (10 times), “evaluate” (19 times) and “recommend” (eight times).

It should be noted that the SAICA competency framework provides the outcomes expected of a person entering the CA profession, in other words, after completion of the CTA qualification. Therefore, the competencies analysed above would be applicable to fourth-year level of study and should not be matched against the undergraduate levels analysed in this study.

9.4 ANALYSING THE COGNITIVE LEVEL OF LEARNING OUTCOMES

This section attempts to address the secondary objective 1.5.2.8 (page 12), namely to critically evaluate the application of the educational-level requirements by evaluating the cognitive level of the set learning outcomes by applying the developed framework for application of a taxonomy of learning in the discipline of MAF.

The learning outcomes of the chosen universities for second year, third year and CTA were analysed and categorised in accordance with the cognitive levels of the revised Bloom’s Taxonomy. The framework for applying the revised Bloom’s Taxonomy in the MAF discipline (paragraph 9.2.4, page 212) was used for the analysis. As with the SAICA outcomes, learning outcomes were matched with the associated cognitive levels by analysing the verb

in the outcome, as well as the typical requirements as set out in the proposed framework for applying the revised Bloom's Taxonomy in the MAF discipline. Data were analysed in four ways:

- An average Bloom rating was calculated for Management Accounting and Financial Management for each year level;
- The outcomes were categorised as higher-order, intermediate or lower-order outcomes;
- The relative distributions of cognitive levels were determined per subject; and
- The verb frequencies in Management Accounting and Financial Management were determined.

In this study every learning outcome in each of the modules were analysed and ranked according to the cognitive levels 1 to 6 of the revised Bloom's Taxonomy.

The results of the above analysis are presented below.

9.4.1 Average Bloom ratings

An average Bloom rating was calculated for each year level per subject (Management Accounting and Financial Management) using a double-weighted averaging scheme in accordance with Brabrand and Dahl's (2007) method (paragraph 7.6.3.1, page 155).

The average Bloom ratings for Management Accounting and Financial Management for the six South African universities are presented in Table 9.17 below.

Table 9.17: Average cognitive Bloom levels of learning outcomes per year group

	Management Accounting	Financial Management	Total	NWU guideline
2 nd year	2.6	2.4	2.6	3.2
3 rd year	2.8	2.6	2.7	3.8
CTA	3.6	3.6	3.6	4.4
SAICA (CTA)	4.4	4.0	4.2	

Source: Researcher

The average ratings are presented per discipline, per year group and in total. The Bloom ratings as proposed by NWU are presented in the right column. An example of how these

values were calculated was presented in paragraph 9.3.1.1 (page 225). It is clear that the actual scores of the universities are below the proposed values. The greatest discrepancy seems to be at third-year level where the combined rating for MAF is 2.7 as opposed to the proposed rating of 3.8. This is in line with the findings of Lakshmi (2013) who reported that the majority of learning outcomes in a Finance module were at the four lower levels of Bloom's Taxonomy (remember, understand, apply and analyse). The lowest level of the revised Bloom's Taxonomy (remembering) constituted more than 25% of learning outcomes.

The average Bloom rating was also calculated for the SAICA outcomes. It should be noted that the SAICA outcomes are for entry level CAs and are, therefore, at a CTA level. For this reason, the SAICA ratings can be compared only to the CTA ratings. The average score for the SAICA outcomes was 4.2, which is a little lower than that proposed by NWU (4.4). This is because of the Financial Management score being lower at only 4.0. The SAICA average for Management Accounting is in line with the proposed rating of 4.4. The CTA score for the chosen universities (3.6) is, however, well below the suggested score of 4.4.

Discussion:

A possible reason for the low Bloom rating at CTA level is that one of the universities had double the number of learning outcomes at the CTA level than the other universities. It was obvious that this university repeated the undergraduate (second- and third-year) learning outcomes, which are assumed to already have been mastered in previous years, in the CTA learning outcomes. This resulted in a lower score at CTA level. When the results of this university are excluded from the calculation, the average Bloom rating at CTA level for the remaining five universities is 4.0. This is closer to the NWU suggested score of 4.4 and the SAICA average of 4.2.

Some of the universities based their learning outcomes for second and third year on those of their prescribed textbooks. The literature has shown that the cognitive levels of outcomes in textbooks are at relatively low levels of Bloom's Taxonomy (Davidson & Baldwin, 2005:92). This could be a reason for the lower cognitive levels for the second and third year.

Another reason for the lower cognitive levels could be the way in which learning outcomes are formulated. An outcome could, for instance, include two verbs, one on a lower level and one on a higher level. The way in which the average was calculated would cause the higher-level word to count less towards the average score because of the fact that the lower-level verb is included in the same outcome.

Some modules included a number of lower-level outcomes, such as explain (level 1 or 2), for each concept individually. These concepts could be grouped together. The learning outcomes were each counted separately and, therefore, increased the number of lower-level outcomes. If these outcomes were grouped together, the weight of the lower-level outcomes would have been lower, resulting in a higher Bloom rating.

This classification is, however, subjective seeing that it depended on the researcher's classification of the verbs. Most of the verbs contained in the learning outcomes could easily have been classified according to the cognitive levels of the revised Bloom's Taxonomy, but some contentious verbs were encountered. These verbs were further examined by discussing the relevant learning outcomes with senior academics with lecturing experience in the subject area, as well as with NWU Academic Support Services (specialists on Bloom's Taxonomy). After staff members involved in the teaching of the modules were consulted, a high degree of agreement was reached regarding the classification of these learning outcomes.

The analysis of the learning outcomes revealed that the level of some outcomes could be altered by changing the verbs in the outcomes. This was also mentioned by Thompson *et al.* (2008:160).

It was found that the learning outcomes were inconsistent: Some were clear and explicit, while others were vague with regard to what is expected of the student. This is in line with the findings of Williams (2013) that the learning outcomes of a single university were formulated inconsistently.

9.4.2 Higher-order and lower-order cognitive level distribution

Higher- and lower-order skills were discussed in chapter 4 (paragraph 4.5, page 97). In paragraph 9.2.3 (page 207) it was suggested that there be three cognitive levels in CA programmes, with "apply" serving as the bridge between lower-order and higher-order cognitive levels. The decision to group the learning outcomes into higher-order, intermediate and lower-order levels and not only according to Bloom levels 1 to 6 was taken because the last three levels of Bloom's Taxonomy (analyse, evaluate and create) can be seen as an ongoing and interrelated process which are not always strictly hierarchical (Nentl & Zietlow, 2008:161). The NWU guidelines for lower-order and higher-order outcomes combine the lower-order and intermediate-order outcomes.

Based on the classification of higher-order (analyse, evaluate and create), intermediate (apply) and lower-order (remember and understand) levels the results for the six universities are as follows:

Table 9.18: Higher-order and lower-order distribution of learning outcomes

	Management Accounting		Financial Management		Total		NWU Guideline
2 nd year							
Lower order	33.4%	69.3%	46.1%	72.5%	36.9%	70.2%	60%
Intermediate	35.9%		26.4%		33.3%		
Higher order	30.7%	30.7%	27.5%	27.5%	29.8%	29.8%	40%
3 rd year							
Lower order	32.8%	61.0%	38.6%	64.6%	35.5%	62.7%	40%
Intermediate	28.3%		26.0%		27.2%		
Higher order	39.0%	39.0%	35.4%	35.4%	37.3%	37.3%	60%
CTA							
Lower order	9.6%	24.2%	18.9%	28.6%	13.6%	26.1%	20%
Intermediate	14.6%		9.7%		12.5%		
Higher order	75.8%	75.8%	71.4%	71.4%	73.9%	73.9%	80%

Source: Researcher

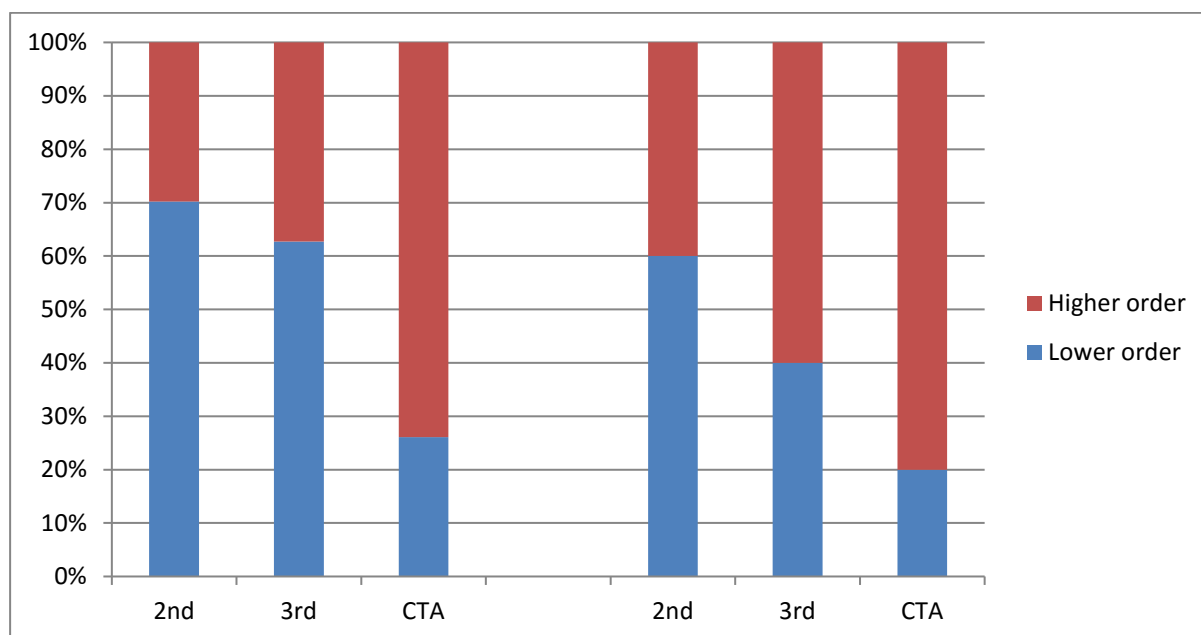
For both Management Accounting and Financial Management and for all year groups, the percentage of learning outcomes that fall within the higher-order level skills (levels 4 to 6 of Bloom's Taxonomy) are below the norm proposed by NWU. The greatest discrepancy seem to be at third-year level, with only 37% of learning outcomes being higher-order outcomes as opposed to the proposed 60% exposure to higher-order outcomes. At second- and third-year level the percentage learning outcomes at the intermediate level is very high (35.9% and 26.4% at second-year level and 28.3% and 26% at third-year level). Lakshmi (2013) also found that the lower-level skills, along with application of knowledge, dominated the learning outcomes in Finance modules in the UK. In a similar vein, Lucas *et al.* (2014) showed that the majority of learning outcomes in third-year biochemistry and zoology modules were at the lower two levels of Bloom's Taxonomy.

Lakshmi (2013) reported that levels 5 and 6, although not as predominant as the lower levels, were presented in the second- and third-year learning outcomes of all universities. This was also the case with the South African universities.

The percentage lower-order outcomes were found to be higher for Financial Management than for Management Accounting for all year levels.

The measured and proposed spread between higher-order outcomes (analyse, evaluate and create) and lower-order outcomes (remember, understand and apply) are contrasted in Figure 9.1 below:

Figure 9.1: Proposed and measured higher- and lower-order skills in learning outcomes



Source: Researcher

The bars to the left indicates the actual percentages for higher- and lower-order outcomes and the bars to the right represents the NWU proposed spread between lower- and higher-order outcomes (paragraph 9.2.3, page 207). For the purposes of this comparison, the “apply” level was categorised as lower order, as this is how NWU categorises it in the proposed weightings. It can clearly be seen that the measured results for especially the third year are lower than the proposed exposure to higher-order levels of learning.

9.4.3 Relative distribution of Bloom levels

In the next section the average Bloom ratings are complemented by presenting the relative distributions of the cognitive levels both per discipline and year level. This provides an indication of the shift towards the higher-order skills as students progress through their studies.

The distribution of the cognitive levels of learning outcomes is presented individually for Management Accounting, Financial Management and MAF in total.

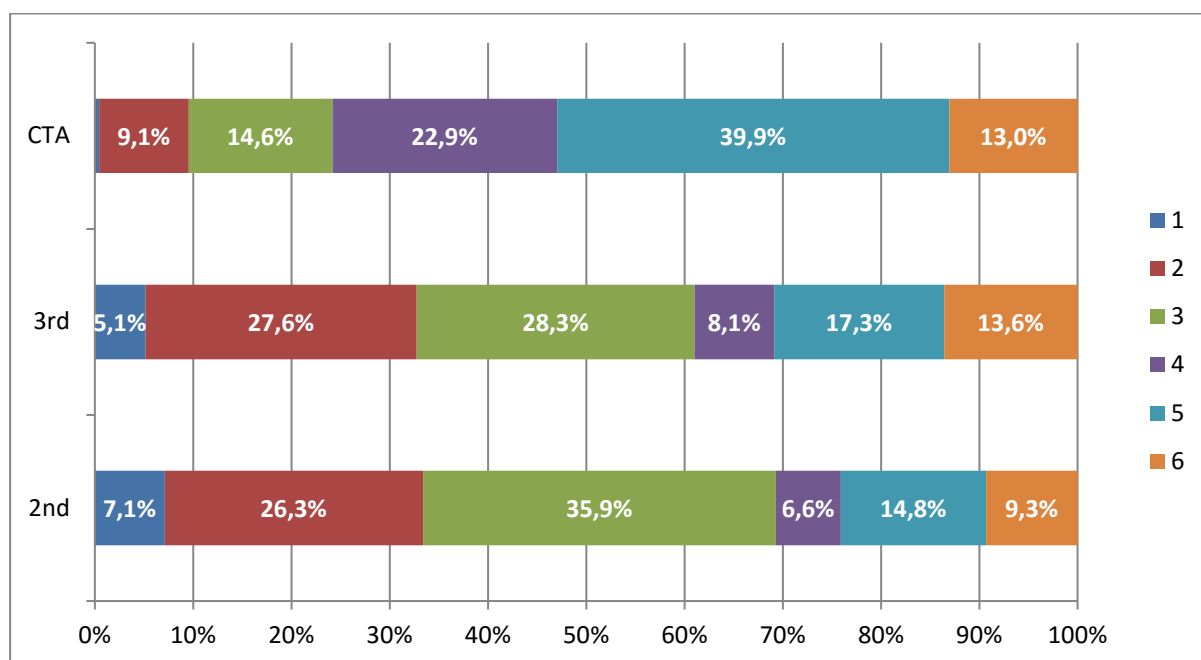


Figure 9.2: Relative distribution of Bloom levels for Management Accounting learning outcomes

Source: Researcher

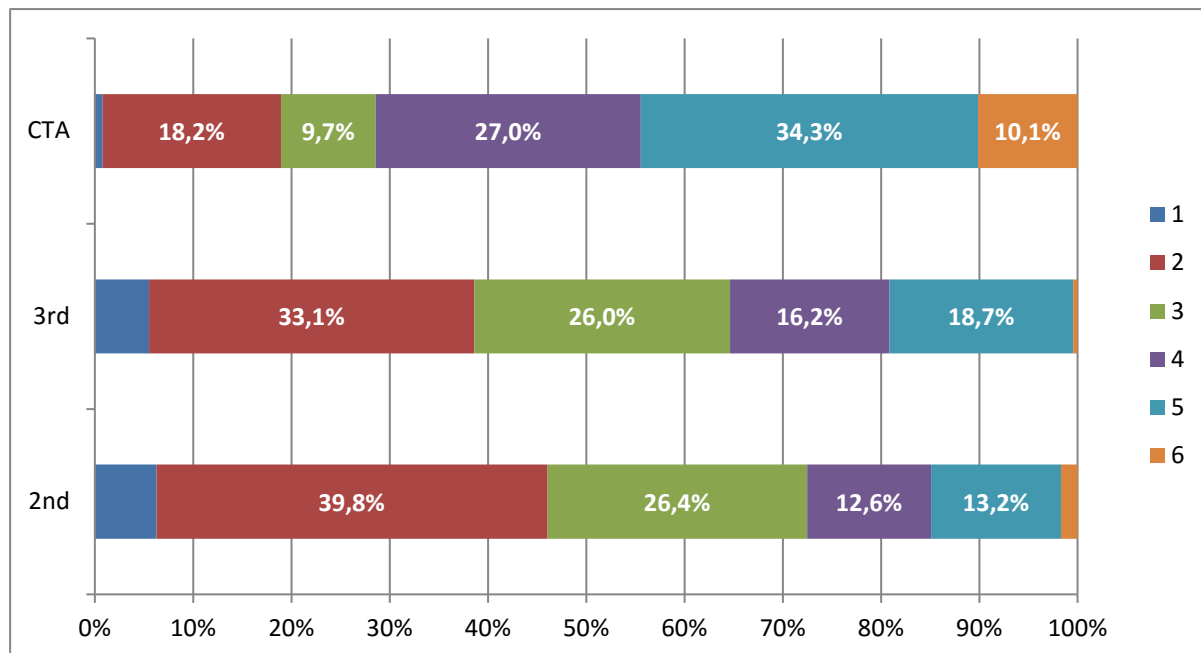


Figure 9.3: Relative distribution of Bloom levels for Financial Management learning outcomes

Source: Researcher

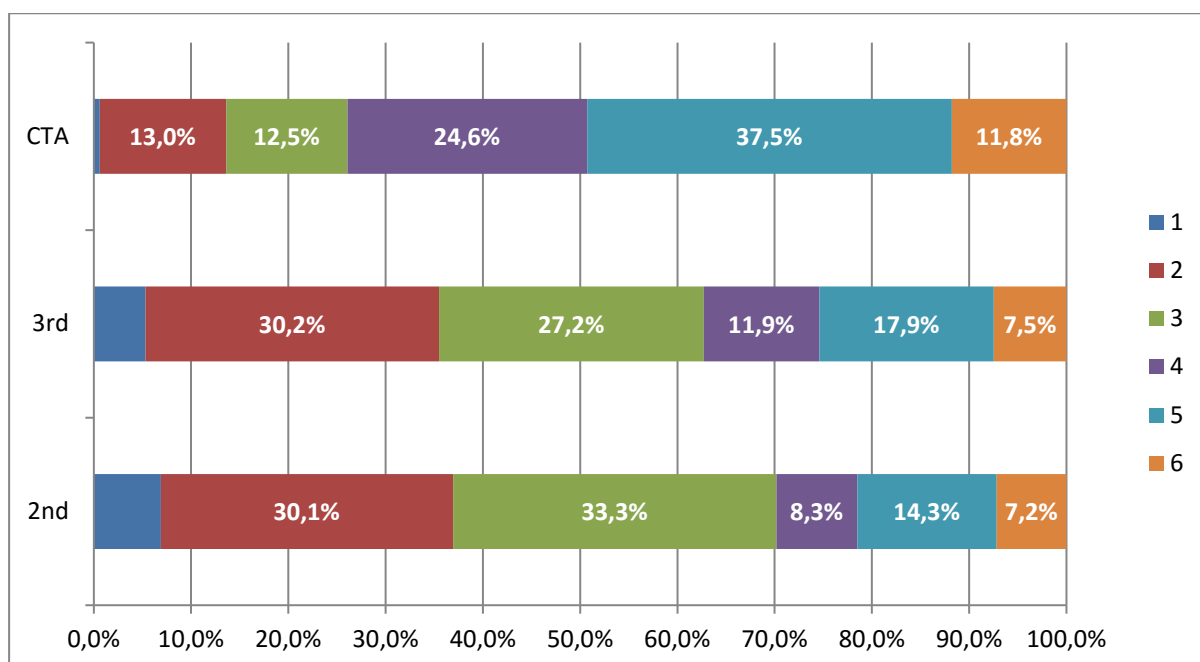


Figure 9.4: Relative distribution of Bloom levels for MAF learning outcomes

Source: Researcher

As expected there is a shift in emphasis from the lower-order cognitive levels of learning to the higher-order cognitive levels as students progress from the second to third year, and from third year to CTA. This is in line with the studies of Brabrand and Dahl (2007) and Williams (2013) who examined competence progression in mathematics and computer science by applying the SOLO Taxonomy.

9.4.4 Verb frequencies

Brabrand and Dahl (2007) reported the verb frequencies for mathematics and computer science. The verbs that were used more than 10 times in MAF are reported below in Table 9.19.

Table 9.19: Frequently occurring verbs in MAF per cognitive level

Bloom 1 Verb	Freq.	Bloom 2 Verb	Freq.	Bloom 3 Verb	Freq.
Explain	(68x)	Discuss	(189x)	Calculate	(151x)
Describe	(56x)	Explain	(153x)	Apply	(100x)
Define	(47x)	Understand	(113x)	Determine	(62x)
Identify	(41x)	Distinguish	(72x)	Compute	(35x)
		Describe	(62x)	Reconcile	(17x)
		Identify	(47x)	Prepare	(16x)
				Use	(15x)
				Perform	(14x)
				Value	(11x)

Bloom 4 Verb	Freq.	Bloom 5 Verb	Freq.	Bloom 6 Verb	Freq.
Identify	(153x)	Evaluate	(134x)	Prepare	(26x)
Analyse	(63x)	Recommend	(41x)	Develop	(19x)
Interpret	(25x)	Advise	(32x)		
Determine	(21x)	Suggest	(31x)		
Calculate	(15x)	Consider	(27x)		
Discuss	(14x)	Determine	(19x)		
Compare	(13x)	Justify	(12x)		
		Make decision	(12x)		
		Monitor	(12x)		
		Motivate	(10x)		

Source: Researcher

As expected the verb “calculate” featured in a large number of learning outcomes (166 times – 151 times at level 3 and 15 times at level 4). In addition to “calculate”, the verb “compute” was also used 35 times. Expecting a student to “compute” is similar to “calculate”, and these two verbs could be combined, resulting in 201 verbs requiring calculations.

In the literature the verb “identify” was highlighted as one of the verbs that could be classified in different cognitive levels, depending on the context (paragraph 4.6, page 99). In this case “identify” was classified as remember (41 times), understand (113 times) and analyse (153 times). The following two questions serve as an example of this classification:

Identify two sources of financing.

In this case a simple recall of knowledge is required and the verb, therefore, lies within the “remember” dimension of the revised Bloom’s Taxonomy. But, when the verb “identify” is used in a question, as in the example below, a different cognitive process is engaged:

Identify ways in which Company A can improve its cash flow position.

Here the student is required to perform an analysis of the situation to be able to identify ways in which the cash flow position can be improved. Thus, the verb will fall within the “analyse” dimension of the revised Bloom’s Taxonomy.

Another verb that is frequently used and falls in more than one cognitive level is “describe”, which was classified as both remember (56 times) and understand (62 times). “Explain” was categorised as remember (68 times) and understand (153 times). The verb “discuss” was used in both the understand (189 times) and analysis category (14 times). Examples of these two classifications are:

Discuss the impact of Just-In-Time on job-order costing.

This question was categorised as being in the understand category of the revised Bloom's Taxonomy.

Discuss the performance of the department.

In order to answer this question the student is required to analyse the performance of the department before being able to discuss the performance; hence, the verb is categorised as analyse.

"Determine" was categorised as application (62 times), analysis (21 times) and evaluation (19 times). The following questions serve as examples:

Determine the selling price by using the economist's pricing model.

The student is expected to apply a given model in a situation. This outcome is at third-year level and does not involve complex scenarios. For this reason, the verb was classified as level 3 (apply). But, when the student is required to perform an analysis, the verb "determine" becomes a level 4 (analyse) verb:

Determine the financial impact of business decisions such as special orders.

"Determine" becomes level 5 (evaluate) when the student is required to perform judgement in order to solve the problem:

Determine the net present value of a project.

At CTA level this outcome would be at a level 5 because the student is required to judge whether the information given in the question is relevant.

Other verbs that are used extensively in MAF are "apply", "distinguish" and "analyse".

Table 9.20 and Table 9.21 provide an indication of the top 10 most-used verbs for Management Accounting and Financial Management respectively at each year level of study, an indication of the related Bloom level.

Table 9.20: Top 10 verbs used in Financial Management

Top ten verbs per year level						
	2 nd year		3 rd year		CTA	
	Verb	Level	Verb	Level	Verb	Level
1	Calculate	3	Understand	2	Identify	4
2	Compute	3	Explain	2	Evaluate	5
3	Apply	3	Calculate	3	Discuss	2
4	Explain	2	Discuss	2	Calculate	3
5	Describe	2	Determine	3	Understand	2

Top ten verbs per year level						
	2 nd year		3 rd year		CTA	
	Verb	Level	Verb	Level	Verb	Level
6	Understand	2	Identify	4	Identify	2
7	Prepare	3	Apply	3	Analyse	4
8	Distinguish	2	Evaluate	5	Explain	2
9	Discuss	2	Define	1	Determine	3
10	Explain	1	Explain	1	Suggest	5

Source: Researcher

Table 9.21: Top 10 verbs used in Management Accounting

Top 10 verbs per year level						
	2 nd year		3 rd year		CTA	
	Verb	Level	Verb	Level	Verb	Level
1	Calculate	3	Discuss	2	Identify	4
2	Explain	2	Explain	2	Evaluate	5
3	Apply	3	Calculate	3	Discuss	2
4	Discuss	2	Apply	3	Analyse	4
5	Explain	1	Describe	1	Recommend	5
6	Describe	1	Explain	1	Determine	3
7	Distinguish	2	Distinguish	2	Consider	4
8	Compute	3	Describe	2	Calculate	3
9	Describe	2	Understand	2	Identify	2
10	Prepare	3	Identify	1	Apply	3

Source: Researcher

The top Bloom level (create) does not feature in the top ten verbs of any one of the subjects at any year level. For Management Accounting the higher-order levels (levels 4 to 6) only feature at CTA level while, for Financial Management, verbs from levels 4 and 5 are in the top ten verbs at third-year level. This is interesting, as the average Bloom ratings for Financial Management are lower than for Management Accounting.

Taking the top six verbs for each subject for CTA level, the list is as follows: “identify” (level 4), “evaluate”, “discuss”, “calculate”, “understand”, “identify” (level 2), “analyse”, “recommend” and “determine”. The top six verbs used by SAICA in the competency

framework are “evaluate”, “identify”, “analyse”, “consider”, “recommend” and “suggest”. The only verbs used frequently by SAICA which do not feature in the top verbs used by the universities are “consider” and “suggest”.

9.5 ANALYSING THE COGNITIVE LEVEL OF SUMMATIVE ASSESSMENTS

This section attempts to address the secondary objective 1.5.2.8 (page 12), namely to critically evaluate the application of the pertinent educational-level requirements by applying the developed framework for application of a taxonomy of learning in the discipline of MAF.

The questions in the summative examination papers of six universities were analysed according to the six cognitive levels of the revised Bloom’s Taxonomy. The framework for applying the revised Bloom’s Taxonomy in the MAF discipline (paragraph 9.2.4, page 212) was used for the analysis. The assessment questions were classified by analysing the requirements and action verbs and matching them against the requirements and verbs as set out in the proposed framework for applying the revised Bloom’s Taxonomy in the MAF discipline. The questions were, subsequently, categorised as higher-order questions (HOq), intermediate-order questions (IOq) or lower-order questions (LOq).

9.5.1 Average Bloom ratings

The average Bloom ratings for each subject for every year level are presented in Table 9.22 below.

Table 9.22: Average Bloom rating for summative examination papers

	Management Accounting	Financial Management	Total	NWU
2nd year	3.2	3.1	3.2	3.2
3rd year	3.8	3.9	3.9	3.8
CTA	4.2	4.3	4.3	4.4
SAICA	4.4	4.0	4.2	

Source: Researcher

The table above shows that almost all subjects across all year groups are in line with the NWU guidelines. The average Bloom rating for Management Accounting is exactly in line with these guidelines for the second year (3.2) and third year (3.8). At CTA level (4.2) it is slightly below the guideline of 4.4. For the second-year Financial Management papers it is

slightly above the guideline of 3.2, and for third year it was 3.9, which is slightly above the guideline (3.8). At CTA level Financial Management papers on average also seem to be very close to the proposed Bloom rating of 4.4. Furthermore, the six universities' papers seem to be in line with the level required by SAICA for fourth-year papers.

The average Bloom ratings indicate that learning goes beyond the lower levels of recall and application of standard methods and theories to the levels of analysis and evaluation where students are expected to display critical thinking skills in the MAF area.

9.5.2 Distribution of higher-order and lower-order cognitive levels

The evaluation of the examination papers indicated the following spread between lower-order, intermediate-order and higher-order questions:

Table 9.23: Spread between HOq and LOq in summative examinations

		Management Accounting			Financial Management		
		2 nd	3 rd	CTA	2 nd	3 rd	CTA
	Verbs used	Ave %	Ave %	Ave %	Ave %	Ave %	Ave %
Remember	Define	0.0%	0.0%	0.0%	2.4%	0.0%	0.0%
	Explain	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%
	Identify	0.4%	0.0%	0.0%	0.7%	0.0%	0.0%
	List	0.8%	0.0%	0.7%	0.7%	0.0%	0.4%
	Name	0.0%	0.0%	0.0%	0.3%	0.2%	0.0%
	State	0.2%	0.2%	0.0%	0.0%	0.3%	0.0%
	No verb	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
	TOTAL	1.4%	0.2%	0.7%	5.6%	0.5%	0.4%
Understand	Comment	0.4%	0.0%	0.0%	0.3%	0.0%	0.0%
	Compare	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
	Describe	2.5%	1.2%	0.0%	0.0%	0.0%	1.6%
	Discuss	2.3%	1.8%	1.4%	3.5%	2.9%	2.7%
	Distinguish	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%
	Explain	2.3%	1.8%	0.0%	6.5%	3.5%	0.0%
	Give examples	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%
	Identify	2.1%	0.4%	0.0%	6.3%	0.8%	1.4%
	Indicate	0.6%	1.1%	0.0%	0.0%	0.0%	0.0%
	Infer	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%
	Name	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%
	No verb	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%
	TOTAL	11.0%	6.4%	1.4%	17.7%	7.9%	5.7%

		2 nd	3 rd	CTA	2 nd	3 rd	CTA
	Verbs used	Ave %	Ave %	Ave %	Ave %	Ave %	Ave %
Apply	Allocate	4.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	Calculate	32.7%	28.0%	4.1%	36.0%	11.3%	0.4%
	Calculate MCQ	1.5%	0.0%	0.0%	0.0%	0.0%	0.0%
	Compile	1.7%	5.9%	0.0%	0.0%	0.0%	0.0%
	Compute	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
	Determine	4.6%	1.4%	0.0%	4.2%	1.0%	0.0%
	Draft	2.9%	1.8%	0.0%	5.2%	0.0%	0.0%
	Explain	0.0%	0.0%	1.4%	0.0%	0.0%	1.4%
	Perform	0.0%	0.8%	0.0%	0.0%	0.7%	0.0%
	Prepare	14.4%	2.0%	0.0%	1.4%	0.0%	0.0%
	Reconcile	4.4%	6.1%	0.0%	0.0%	0.0%	0.0%
	Write	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%
	TOTAL	67.0%	46.5%	5.5%	46.9%	13.0%	1.8%
Analyse	Analyse	0.0%	0.8%	1.4%	4.7%	9.1%	5.0%
	Analyse and interpret	0.0%	0.0%	0.0%	0.0%	9.3%	0.0%
	Calculate	5.9%	12.2%	31.0%	7.0%	24.1%	10.2%
	Comment	0.0%	0.0%	2.8%	0.0%	1.0%	5.5%
	Determine	1.6%	5.5%	3.1%	0.0%	4.2%	1.4%
	Discuss	0.0%	6.1%	19.7%	0.0%	4.9%	17.0%
	Explain	0.0%	1.1%	2.4%	2.4%	1.2%	4.3%
	Highlight	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
	Identify	0.6%	0.0%	1.7%	2.4%	0.0%	7.9%
	Indicate	0.4%	0.0%	0.0%	0.0%	0.2%	0.0%
	Interpret	0.0%	0.0%	0.0%	1.0%	0.0%	0.0%
	List (identify)	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%
	Review	0.0%	0.0%	1.4%	0.0%	0.0%	0.0%
	No verb	0.0%	0.0%	0.0%	0.0%	0.8%	0.0%
	TOTAL	8.5%	25.7%	64.8%	17.7%	54.8%	52.1%
Evaluate	Advise	4.0%	0.2%	2.1%	1.0%	9.9%	10.5%
	Calculate	0.0%	2.0%	5.2%	0.0%	0.7%	1.8%
	Comment	0.0%	0.0%	0.0%	0.0%	0.0%	7.5%
	Determine	0.0%	2.0%	9.7%	5.6%	5.7%	6.3%
	Evaluate	1.7%	0.0%	3.8%	4.9%	0.0%	7.0%
	Justify	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%
	Motivate	0.0%	0.0%	0.7%	0.0%	0.5%	0.5%
	Recommend	1.7%	2.8%	1.0%	0.7%	1.0%	0.9%
	Substantiate	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%
	Suggest	0.0%	0.0%	0.0%	0.0%	4.8%	0.0%
	Value	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%
	TOTAL	7.4%	6.9%	0.0%	0.3%	4.8%	35.2%
Create	Compile	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%
	Determine	0.0%	0.0%	0.0%	0.0%	0.0%	4.8%
	Prepare	4.7%	10.0%	0.0%	0.0%	0.3%	0.0%
	TOTAL	4.7%	14.4%	0.0%	0.0%	0.3%	4.8%
	Total percentage	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Researcher

The six cognitive levels of the revised Bloom's Taxonomy are shown on the left-hand side of the table. The average percentages for each action verb used are shown in the columns on the right per subject per year level. They are presented as a percentage of the total marks examined for the year level.

Table 9.24 provides a summary of the distribution between HOq and LOq as indicated in Table 9.23.

Table 9.24: Higher-order and lower-order distribution of examination papers

	Management Accounting		Financial Management		Total		NWU guideline
2nd year							
Lower order	12.4%	79.3%	23.3%	70.1%	16.2%	76.1%	60%
Intermediate	67.0%		46.9%		59.8%		
Higher order	20.7%	20.7%	29.9%	29.9%	23.9%	23.9%	40%
3rd year							
Lower order	6.6%	53.1%	8.4%	21.4%	7.6%	36.0%	40%
Intermediate	46.5%		13.0%		28.4%		
Higher order	46.9%	46.9%	78.6%	78.6%	64.0%	64.0%	60%
CTA							
Lower order	2.1%	7.6%	6.1%	7.9%	4.7%	7.8%	20%
Intermediate	5.5%		1.8%		3.1%		
Higher order	92.4%	92.4%	92.1%	92.1%	92.2%	92.2%	80%

Source: Researcher

The results of the final examination papers for Management Accounting at second-year level show that only 12.4% of the questions were LOq (remember and understand), while the LOq for Financial Management comprised 23.3% of the total marks. The average LOq for MAF was 16.2%, which is much lower than a finding by Swart (2010) that 33% of the marks in second-year engineering examination papers were LOq.

The results in Table 9.24 might seem to contradict the Bloom ratings in Table 9.22 which indicated that all subjects in all year groups were in line with the proposed guideline. The reason for this is that the majority of questions in Management Accounting and Financial Management were in the intermediate category, with few questions at the lower-order level; therefore, the average Bloom rating was lifted. This is because of the fact that “calculate”

was used extensively. This was also the case with Financial Management where “calculate” at second-year level comprised 36% of the total marks (Table 9.24).

The LOq (remember and understand) for second-year Financial Management were higher (23.3%) than those for Management Accounting (12.4%). For second-year Management Accounting papers, 67% of the total marks were at the “apply” level, while apply comprised 46.9% of the Financial Management marks. Most of the marks were at the apply level. Lucas *et al.* (2014) also reported that level 3 (apply) showed the highest score in biochemistry and zoology papers. This is in line with what Bloom wrote: “The fact that most of what we learn is intended for the application to problem situations in real life is indicative of the importance of application objectives in the general curriculum” (Bloom *et al.*, 1956:122).

Marks allocated towards HOq were 20.7% for Management Accounting and 29.9% for Financial Management. These are both below the proposed guideline of 40% HOq at second-year level, but above the average percentage of 9% HOq as calculated by Swart (2010) for engineering.

At third year marks allocated to HOq were 46.9% for Management Accounting and 78.6% for Financial Management. The reason for this could be that the mark allocation for Financial Management questions is slightly different than that for Management Accounting. It was found that Financial Management questions often have more marks allocated to a single question. These verbs are at higher levels and, therefore, assigned a higher Bloom rating. The combined level of HOq for MAF was at 64%, which is slightly higher than the proposed percentage of 60%. Swart (2010) found that 52% of questions in third-year engineering papers were at the two lowest cognitive levels (remember and understand) and that only 16% of questions were HOq. Similarly, Lucas *et al.* (2014) showed that the majority of examination questions (33%) in third-year biochemistry papers were at the first two levels of Bloom’s Taxonomy (remember and understand). A total of 28% of questions were reported to be at the third level (apply), and 39% of third-year papers were at the three higher-order levels (analyse, evaluate and create).

At CTA level the HOq were in the majority for both Management Accounting and Financial Management. The HOq questions increased dramatically for both Management Accounting and Financial Management.

The distribution of marks towards HOq is below the NWU guideline for the second-year papers, but at third-year and CTA level, there are more HOq than proposed. At third-year

level the HOq for Management Accounting are below the proposed guideline, while for Financial Management they are well above the guideline. For CTA level the results seem to be in line for Management Accounting (92.4%) and Financial Management (92.1%) with an average percentage of 92.2% HOq for MAF as a whole. These percentages are well above the proposed guideline of 80%. The majority of questions in engineering examination papers (Swart, 2010) were also found to be at higher cognitive levels, but the percentage (46%) is much lower than that of the CTA papers in this study.

According to Swart (2010:260), HOq should begin to dominate in the later years of a student's academic career, while the LOq should decrease. The above results show that this seems to be the case in the MAF discipline at South African universities.

9.5.3 Relative distribution of Bloom levels

In the next section the average Bloom ratings of the assessment questions are complemented by presenting the relative distributions of the cognitive levels both per discipline and per year level. As with the learning outcomes, this provides an indication of the shift towards the higher-order skills in examination papers as students progress through their studies.

The distribution of the cognitive levels of learning outcomes is presented individually for Management Accounting, Financial Management and MAF in total.

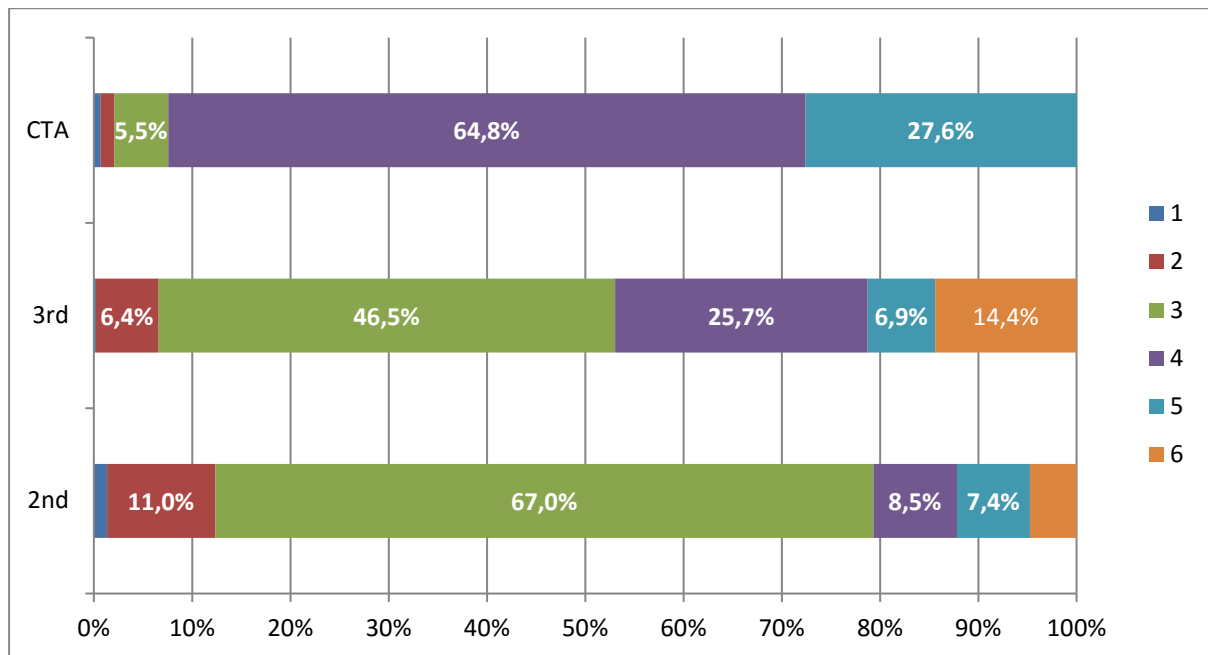


Figure 9.5: Relative distribution of cognitive levels of examination questions for Management Accounting

Source: Researcher

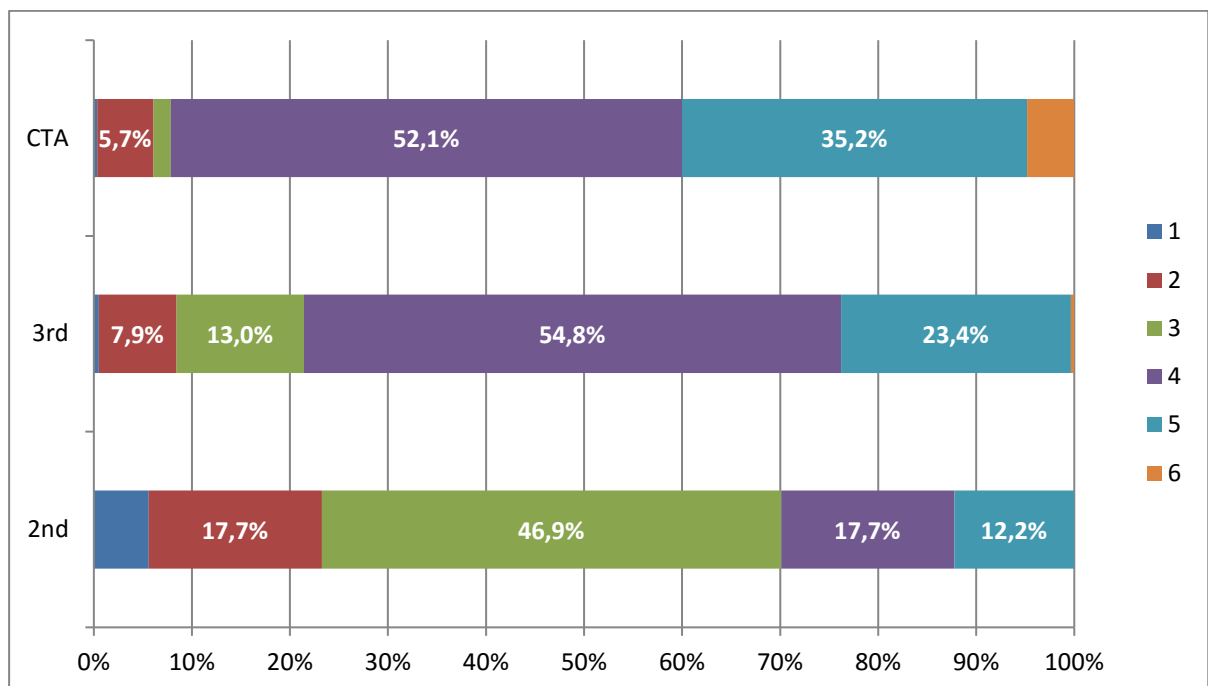


Figure 9.6: Relative distribution of cognitive levels of examination questions for Financial Management

Source: Researcher

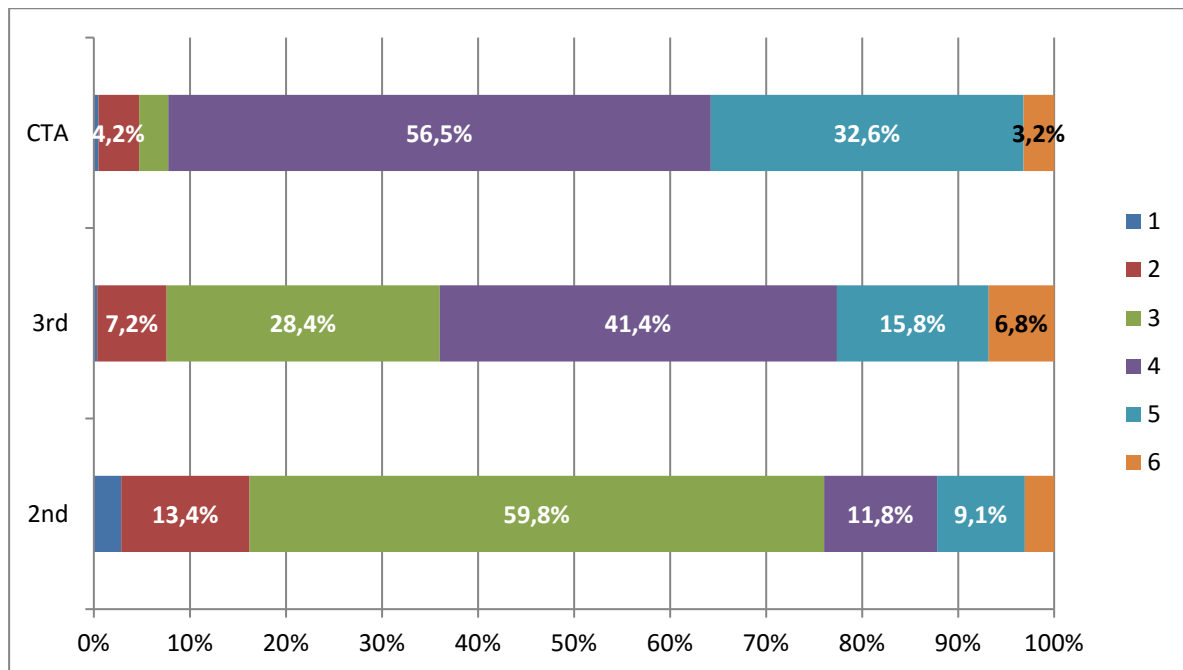


Figure 9.7: Relative distribution of cognitive levels of examination questions for MAF

Source: Researcher

As with the learning outcomes there is a clear indication of a shift towards the higher-order cognitive skills as the student progresses through the three years of study. This shift is particularly evident at CTA level. This shift towards higher-order cognitive skills is in line with the findings of Williams (2013).

9.5.4 Verb frequencies

The verbs that were used frequently in the Management Accounting and Financial Management examination papers are presented below:

Table 9.25: Frequently occurring verbs in MAF examination papers

Bloom 1 Verb	Freq.	Bloom 2 Verb	Freq.	Bloom 3 Verb	Freq.
Define	(4x)	Comment	(2x)	Allocate	(2x)
Explain	(2x)	Compare	(1x)	Calculate	(94x)
Identify	(3x)	Describe	(7x)	Compile	(5x)
List	(5x)	Discuss	(16x)	Compute	(1x)
Name	(2x)	Distinguish	(1x)	Determine	(10x)
State	(4x)	Explain	(19x)	Draft	(4x)
		Give examples	(1x)	Explain	(2x)
		Identify	(22x)	Perform	(2x)

		Indicate (6x)	Prepare (13x)
		Infer (2x)	Reconcile (4x)
		Name (1x)	Write (1x)
Bloom 4 Verb	Freq.	Bloom 5 Verb	Freq.
Analyse	(9x)	Advise	(18x)
Analyse and interpret	(1x)	Calculate	(4x)
Calculate	(34x)	Comment	(2x)
Comment (interpret)	(6x)	Determine	(7x)
Determine	(7x)	Evaluate	(9x)
Discuss	(31x)	Justify	(1x)
Explain	(9x)	Motivate	(3x)
Highlight	(1x)	Recommend	(9x)
Identify	(14x)	Substantiate	(1x)
Indicate	(2x)	Suggest	(2x)
Interpret	(1x)	Value	(1x)
List (identify)	(1x)		
Review	(1x)		

Source: Researcher

The table above is further illustrated by an analysis of the top ten verbs used in Management Accounting (Table 9.26) and Financial Management (Table 9.27) respectively.

Table 9.26: Top ten verbs used in Management Accounting examination papers

Top ten verbs per level: Management Accounting						
	2nd year		3rd year		CTA	
	Verb	Level	Verb	Level	Verb	Level
1	Calculate	3	Calculate	3	Discuss	4
2	Prepare	3	Calculate	4	Calculate	4
3	Identify	2	Discuss	4	Suggest	5
4	Explain	2	Explain	2	Recommend	5
5	Indicate	2	Compile	3	Comment	4
6	Determine	3	Prepare	6	Calculate	3
7	Advise	5	Recommend	5	Substantiate	5
8	Calculate	4	Determine	4	Motivate	5
9	Prepare	6	Reconcile	3	Evaluate	5
10	Evaluate	5	Prepare	3	Determine	5

Source: Researcher

Table 9.27: Top ten verbs used in Financial Management examination papers

Top ten verbs per level: Financial Management						
	2nd year		3rd year		CTA	
	Verb	Level	Verb	Level	Verb	Level
1	Calculate	3	Calculate	3	Discuss	4
2	Identify	2	Calculate	4	Identify	4
3	Explain	2	Advise	5	Calculate	4
4	Define	1	Discuss	2	Discuss	2
5	Explain	1	Explain	2	Explain	4
6	Identify	1	Analyse	4	Advise	5
7	Determine	3	Discuss	4	Evaluate	5
8	Calculate	4	Identify	2	Comment	4
9	Explain	4	Determine	5	Comment	5
10	Identify	4	Recommend	5	Determine	5

Source: Researcher

The verb that is used most frequently in MAF examinations is the verb “calculate” at the application level of Bloom’s Taxonomy (94 times). The list of top ten verbs clearly shows that the verb “calculate” is used mainly at second- and third-year level in both Management Accounting and Financial Management modules. “Calculate” at the analysis level (level 4) is also used a considerable number of times (34 times) in examination questions, and “calculate” at the evaluation level was used four times. “Calculate” at the analysis level was in the top three verbs in third-year and CTA Management Accounting and Financial Management modules. In total the verb “calculate” was used 132 times out of 418 verbs.

Other verbs that were used a considerable number of times (more than 10) are “identify” (levels 2 and 4), “discuss” (levels 2 and 4), “explain” (level 2), “determine” (level 3), “prepare” (level 3) and “advise”.

The top ten verbs used in MAF examinations make up a larger proportion of the total verbs than with the learning outcomes. This is the case for both Management Accounting and Financial Management on all year levels. The top ten verbs make up more than 70% of total verbs used in all instances. The clustering of verbs in Financial Management seems to be closer, as the percentages are higher than those of Management Accounting, especially at third-year and CTA level.

Taking the top six verbs for each subject at CTA level and combining them, the list is as follows: “discuss” (level 4), “calculate” (level 4), “suggest”, recommend”, “comment”, “calculate” (level 3), “identify” (level 4), “discuss” (level 2), “explain” (level 4) and “advise”. As

mentioned in paragraph 9.4.4 (page 246), the top six verbs in the SAICA learning outcomes are “evaluate”, “identify”, “analyse”, “consider”, “recommend” and “suggest”. The only verbs used frequently by SAICA and in the CTA examination questions of the universities are “identify”, “recommend” and “suggest”. It was established previously that universities tend to focus on the SAICA competency framework and it is, therefore, surprising that the verbs used by the universities are not more similar to those used by SAICA.

Discussion on the analysis of examination papers

It is important to note that the difficulty level of a question does not determine the cognitive level required of the learner (Thompson *et al.*, 2008:160). Dunham *et al.* (2015:11) agree by stating that the taxonomy measures the depth in which a student has mastered content and not the level of difficulty of the content.

The questions in the examination papers were classified, first, based on the verb in the question. However, some questions were encountered that did not use a verb giving a direct instruction to the student. These questions were analysed according to what was expected of the student. An example of such a question is:

How does a perpetuity differ from an annuity?

This question was categorised as level 2 “understand”, as the student is clearly expected to contrast annuities and perpetuities by highlighting the differences between the two. Contrasting is one of the subcategories of “understand”.

Another example is:

What is the current prime lending rate in South Africa?

The student is required to recall information from long-term memory. This clearly falls within the recall subcategory of remember, and the question is categorised as “remember”.

Examples of the reasoning behind the classification of other questions are as follows:

Advise the management of Company A whether they should purchase or lease the machine.

The verb in this question suggests that the cognitive level should be level 5 “evaluate”, because the verb “advise” is usually associated with this level. In this case, however, 14 of the 21 marks were allocated to calculations. Calculating the effect of a lease as opposed to a buy decision in Financial Management involves identifying the relevant cash flows for each decision and applying the net present value technique to calculate the financial impact of the two alternatives. The recommendation is then made based on the calculations. In a question such as this, the 14 marks are classified as “analyse” and the three marks allocated to the verb “advise” is categorised as “evaluate”.

Questions that contained multiple verbs were more difficult to analyse. In cases where the mark allocation was indicated, the classification was easier. In some cases the verbs were in the same category, for example:

Analyse and interpret the financial performance of Company A.

“Analyse” and “interpret” are both in the “analyse” category of the revised Bloom’s Taxonomy. Therefore, it can easily be classified as level 4 (analyse). The verb frequency count is, however, influenced and both verbs are counted.

9.6 STATISTICAL ANALYSIS

Statistical analysis was performed to test the differences in the cognitive levels of learning outcomes and assessments. In this section statistical analysis was used to answer the following questions:

- Between subjects
 - How do the cognitive levels of learning outcomes differ between Management Accounting and Financial Management?
 - How do the cognitive levels of assessment questions differ between Management Accounting and Financial Management?
- Between year levels
 - How do the cognitive levels of learning outcomes differ between second-year, third-year and CTA level?
 - How do the cognitive levels of assessment questions differ between second-year, third-year and CTA level?

The inputs for the statistical analysis were the average Bloom ratings of the learning outcomes and assessment questions calculated earlier in this chapter (paragraph 9.4.1, page 240 and paragraph 9.5.1, page 250). The inputs were per university per year level and per subject.

9.6.1 Differences in cognitive levels between subjects

In this section the differences between the cognitive levels of both the learning outcomes (LO) and assessment questions (AQ) between the two subjects (Management Accounting (Mac) and Financial Management (Fin)) were investigated. Although Management Accounting and Financial Management are treated as a combined discipline at most South African universities, they are actually two separate subjects. This is confirmed by the fact that SAICA has two separate competency areas for these two subjects in the competency

framework. Therefore, the differences between the cognitive levels of learning outcomes and assessment questions of these two subjects were analysed. The results are displayed below.

Table 9.28: Differences in cognitive levels between subjects

	t-tests							Mann-Whitney
Variable	Mac		Fin		t-value	df	p-value	p-value
	Mean	Std dev	Mean	Std dev				
LO	3.27	0.81	3.07	0.68	0.7679	34	0.4484	0.4387
AQ	3.73	0.49	3.88	0.54	-0.8591	34	0.3969	0.3775

**p-value: <0.05, indicates a significant result, assuming a random sample*

Source: Researcher

The results of the *t*-tests indicate no statistical significant difference between the cognitive level of learning outcomes of Management Accounting and Financial Management, as the *p*-value (0.4484) is greater than 0.05. There is also no statistical significant difference between the level of assessment questions of Management Accounting and Financial Management (*p* = 0.3969).

These results were confirmed by the Mann-Whitney U-test. The *p*-values for learning outcomes and assessment questions (0.4387 and 0.3775 respectively) indicated no statistically significant differences.

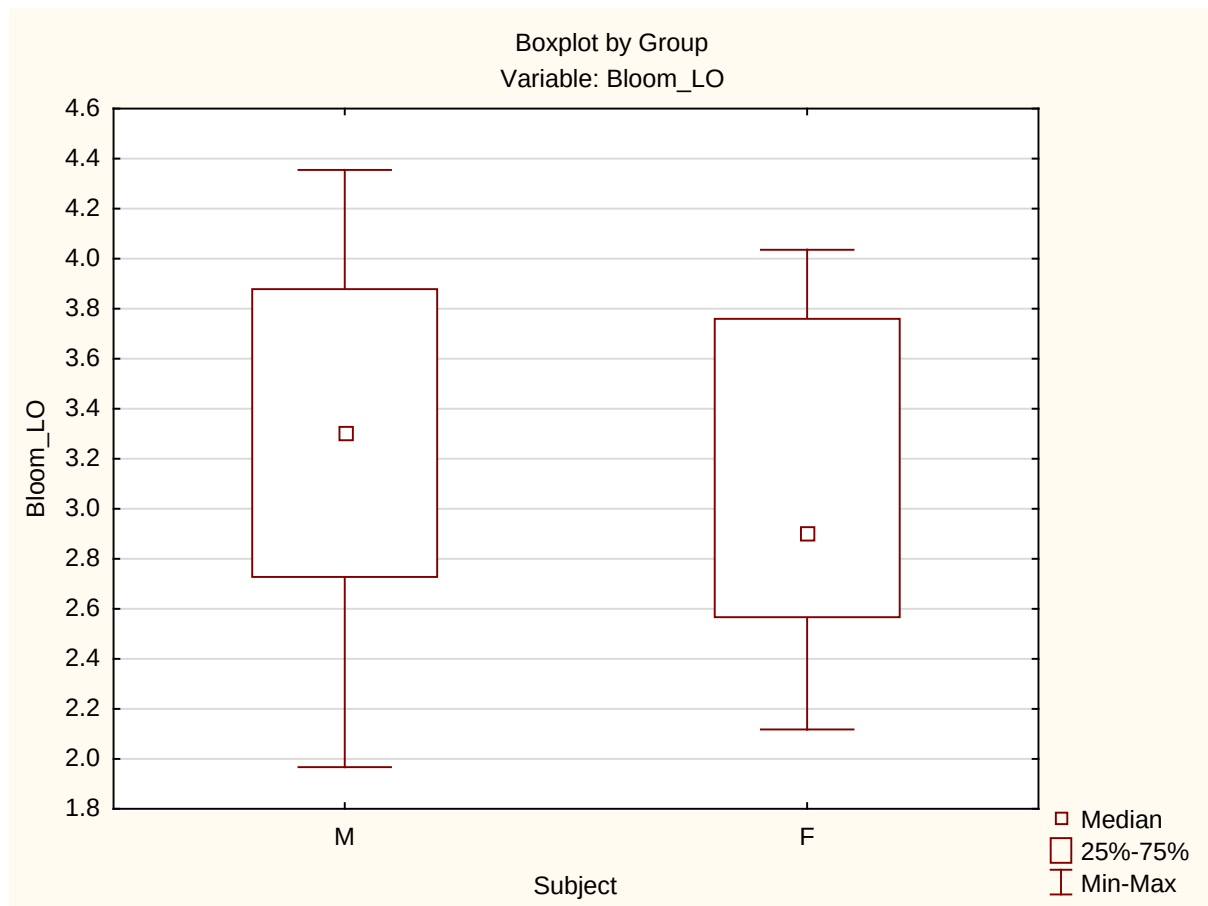


Figure 9.8: Difference between cognitive levels of learning outcomes for Management Accounting and Financial Management

Source: Researcher

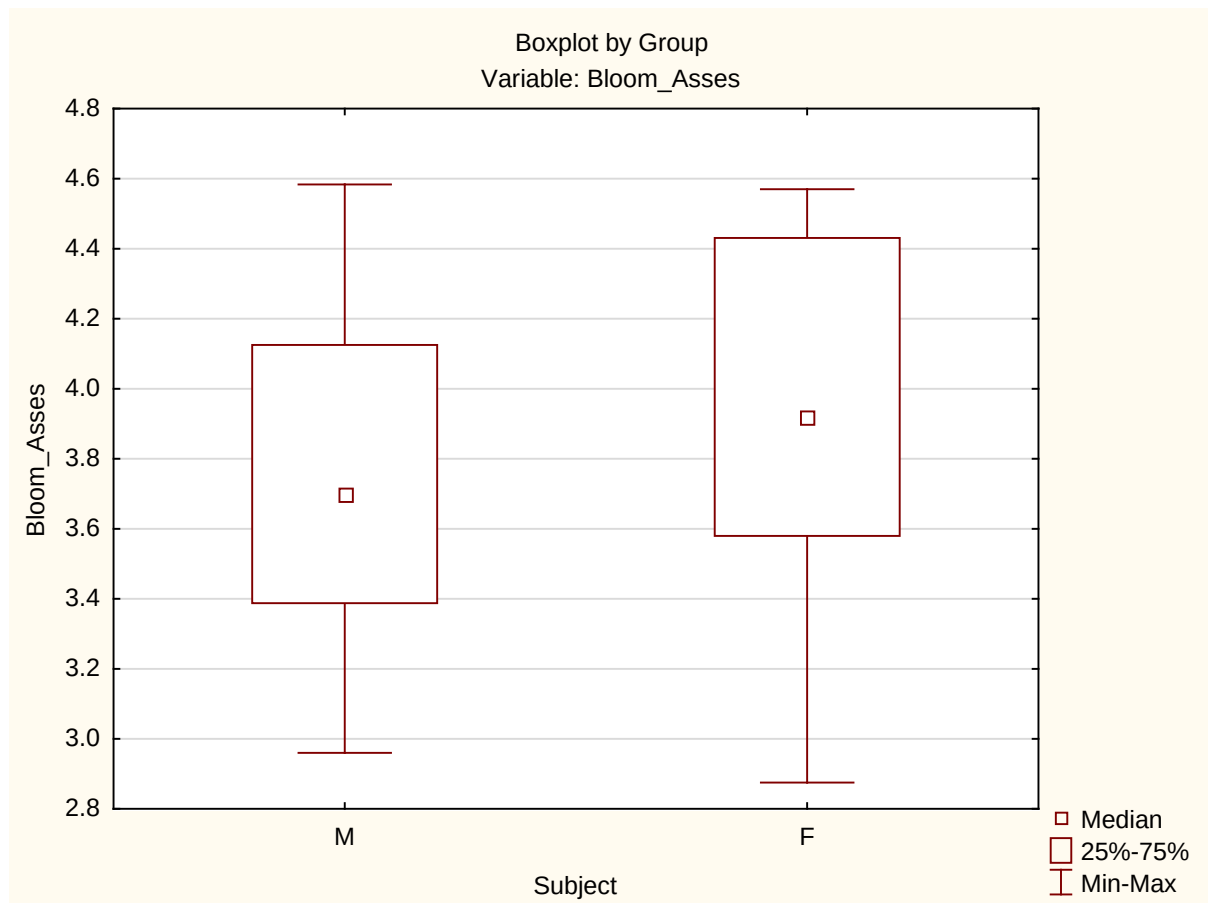


Figure 9.9: Difference between cognitive levels of assessment questions for Management Accounting and Financial Management

Source: Researcher

9.6.2 Difference in cognitive levels between year levels

In this section the difference between the cognitive levels of both learning outcomes and assessment questions for the different year levels (second, third and CTA) was investigated. An ANOVA and a non-parametric Kruskal-Wallis test were performed to identify any significant variances between the year levels.

Table 9.29: Differences in cognitive levels between year levels

	2 nd year		3 rd year		CTA		ANOVA <i>p</i> -value	Kruskall-Wallis <i>p</i> -value
	Mean	Std dev	Mean	Std dev	Mean	Std dev		
LO	2.68	0.45	3.03	0.70	3.75	0.63	0.0005*	0.0020*
AQ	3.17	0.22	3.83	0.30	4.25	0.29	<0.0001*	<0.0001*

**p*-value: <0.05, indicates a significant result, assuming a random sample

Source: Researcher

The mean values as reported in Table 9.29 indicate a continuous upward trend for the average Bloom ratings of learning outcomes and assessment questions for both Management Accounting and Financial Management from the second-year to the CTA level. This is in line with the literature stating that there should be a move towards the higher cognitive levels of learning as students pass through the different year levels (paragraph 4.5, page 97).

The results of the ANOVA and Kruskal-Wallis test (Table 9.29) show significant differences for the level of both learning outcomes and assessment questions between the year levels, as all the *p*-values are smaller than 0.05. In order to determine where the differences are, a non-parametric multiple comparisons post-hoc test was performed. The results are presented in Table 9.30.

Table 9.30: Statistical significance between year levels: non-parametric comparisons test

	Learning outcomes			Assessment questions		
	2 nd year	3 rd year	CTA	2 nd year	3 rd year	CTA
2 nd year		0.9050	0.0018*		0.0214*	<0.0001*
3 rd year	0.9050		0.0653	0.0214*		0.0758
CTA	0.0018*	0.0653		<0.0001*	0.0758	

**p*-value: <0.05, indicates a significant result, assuming a random sample

Source: Researcher

From the results in Table 9.29 and Table 9.30 it can be deduced that the Bloom ratings of learning outcomes for the CTA level are statistically significantly higher than those for the second-year level (*p* = 0.0018). This can also be seen in the mean values of the different

year levels. The second-year modules have a mean rating of 2.68, while the third-year modules have a mean rating of 3.03 (Table 9.29) indicating an increase in the cognitive level from the second to the third year. The significant difference, however, is between the second year and CTA (mean value of 3.75). This is in line with what the literature requires, i.e. that cognitive levels of learning increase as learners move from one level of study to the next. This is the case for the learning outcomes of the MAF modules in CA programmes at South African universities. The CTA level has a mean rating of 3.75, which is significantly higher than that of the second year. Thus, there seems to be an increase in the cognitive level of learning outcomes in the CTA year.

Figure 9.10 provides a graphical illustration of the Bloom levels of learning outcomes between the different year levels.

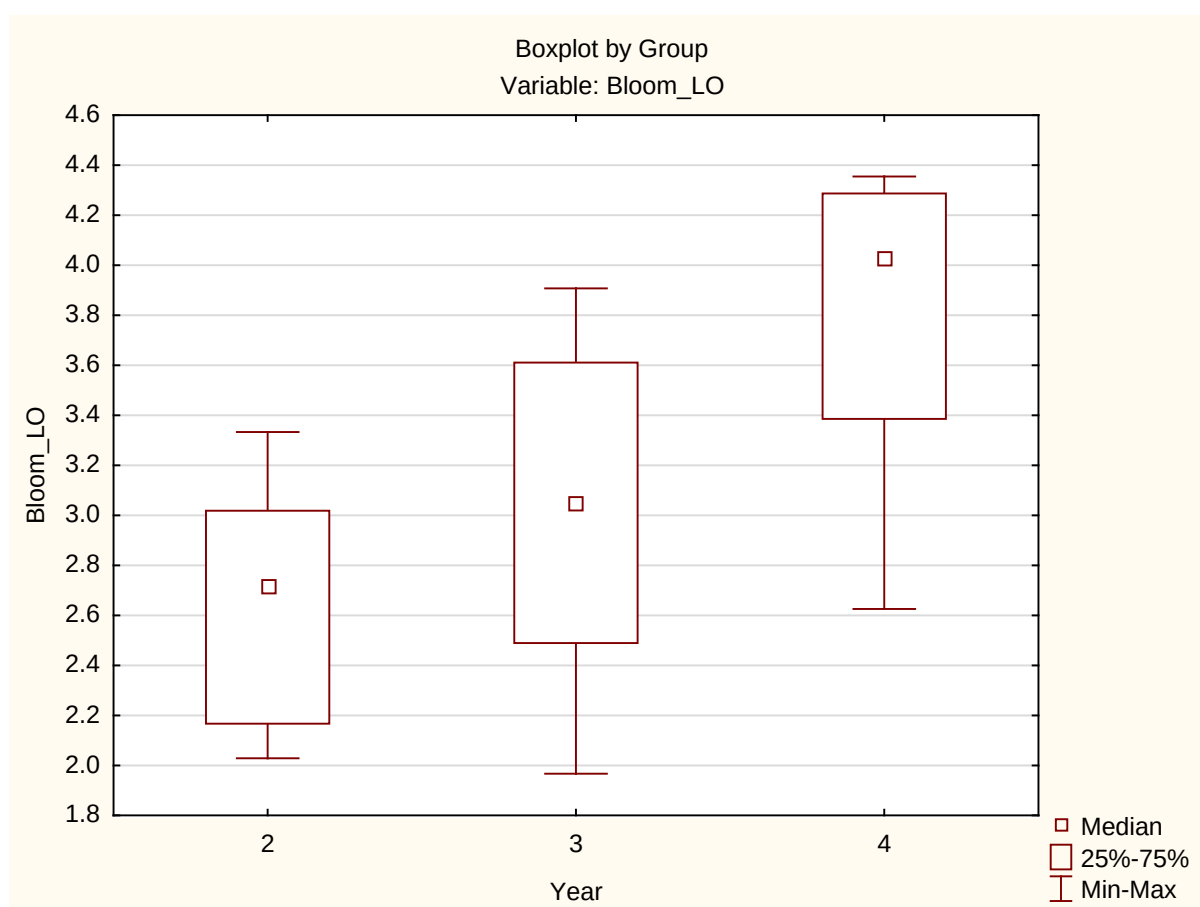


Figure 9.10: Difference in cognitive levels of learning outcomes between year levels

Source: Researcher

As far as the assessment questions are concerned, the average Bloom ratings for the second-year level is statistically significantly smaller than those of the third year or CTA ($p = 0.0214$ and $p < 0.001$ respectively) (Table 9.29 and Table 9.30). The difference between

Bloom ratings for third-year and CTA modules is not statistically significant. The mean values for the Bloom ratings of the assessment questions are 3.17 at second-year level, 3.83 at third-year level and 4.25 at CTA level.

Figure 9.11 provides a graphical illustration of the Bloom levels of assessment questions between the different year levels.

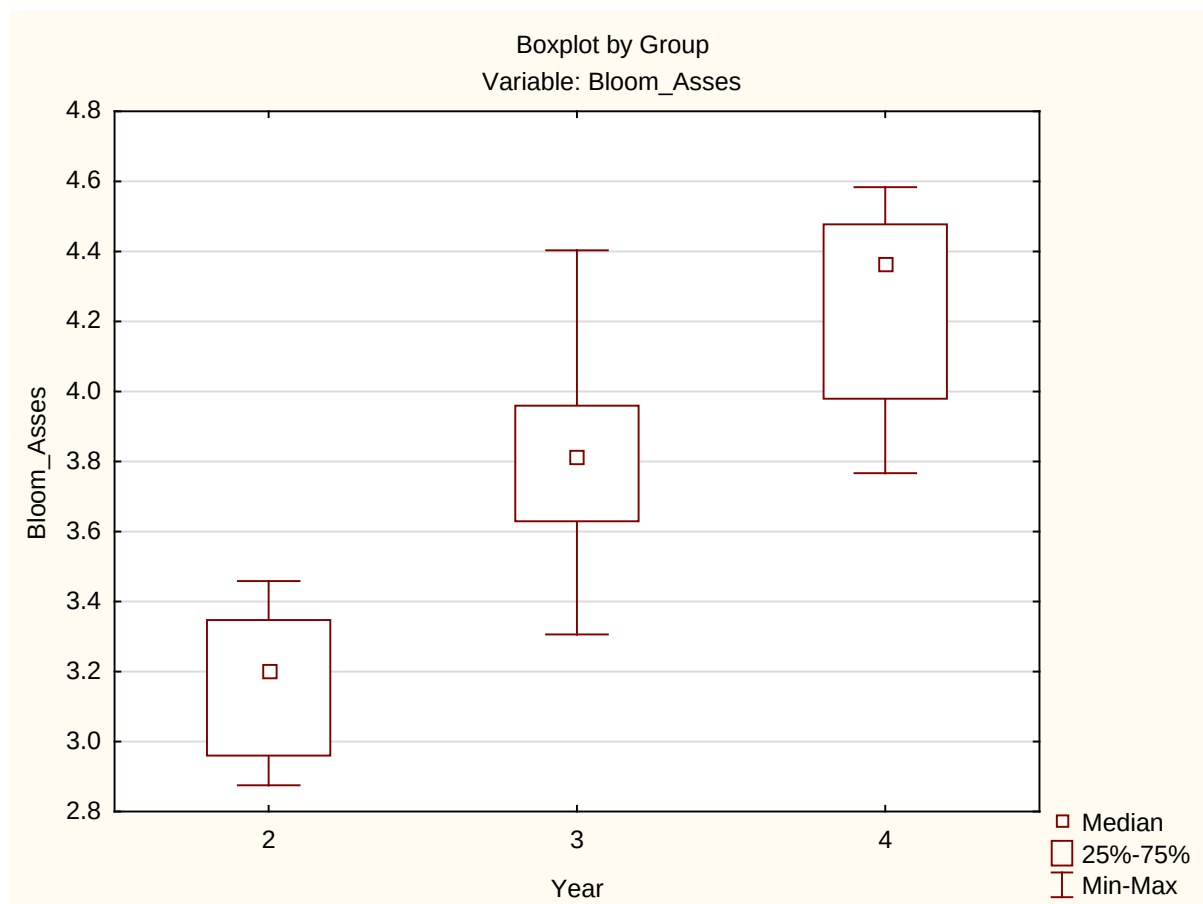


Figure 9.11: Differences in cognitive levels of assessment questions between the year levels

Source: Researcher

9.7 SUMMARY

This chapter aimed to address secondary objectives 1.5.2.7 and 1.5.2.8 as set out in chapter 1 (page 12). The first secondary objective addressed in this chapter was to develop an appropriate taxonomy of learning for application in the MAF discipline. Based on a detailed literature review and interviews with staff members of NWU Academic Support Services, the chapter commenced with a discussion of the application of the revised Bloom's Taxonomy in the MAF discipline. The six levels of the taxonomy were explained and the application in the MAF area was highlighted with examples of outcomes for each cognitive level. A verb list as

compiled from the accounting education literature was presented. This verb list served as the basis for the analysis of the cognitive level of the learning outcomes and assessments questions. An analysis of the cognitive levels required by NWU and SAICA was presented and guidelines for the cognitive levels of modules within CA programmes were given based on this analysis. It was proposed that there be three cognitive levels for CA programmes, namely lower order, intermediate order and higher order. These levels are in line with the levels presented by SAICA in the competency framework. The first section of this chapter concluded by combining the above in a framework for the interpretation of the revised Bloom's Taxonomy in the MAF discipline. This framework, including the verb list, was then used to interpret and categorise the learning outcomes and questions in the summative assessments, which followed in the subsequent sections.

After presenting the framework for application of the revised Bloom's Taxonomy in the MAF discipline, the framework was employed to analyse and categorise the learning outcomes of Management Accounting and Financial Management in the SAICA competency framework. It was found that 85.4% of the outcomes for Financial Management and 90.1% of the outcomes for Management Accounting were at the top three cognitive levels of the revised Bloom's Taxonomy (analyse, evaluate and create). This is greater than the proposed guideline of 80%. Explanations and motivations for the categorisation of the outcomes were provided based on the framework for application of the revised Bloom's Taxonomy in MAF. The verbs that are used most frequently by SAICA in their outcomes are "identify", "analyse", "understand", "evaluate", "suggest" and "develop".

The next section of this chapter addressed the cognitive levels of learning outcomes at the participating South African universities. The analysis showed that the average Bloom ratings as calculated for the learning outcomes for Management Accounting were below the NWU proposed guideline. This was more so for the third year of study. At CTA level the level of learning outcomes was not only below the NWU guideline, but also below the level of the SAICA outcomes in the competency framework. This was also the case with Financial Management, which had Bloom ratings lower than those proposed by NWU throughout second to fourth year. The percentage of outcomes in the higher-order cognitive levels of both Management Accounting and Financial Management were also below the proposed guidelines. This was the case for second-year, third-year and CTA modules. The greatest concern seems to be at third-year level where the MAF higher-order outcomes are at 37.3%, which is much lower than the proposed 60%. However, a definite shift was indicated towards the higher cognitive levels as students progress through the years of study. The frequencies of the use of verbs in MAF were analysed as well. It was shown that the verbs "identify",

“evaluate”, “discuss”, “calculate”, “understand”, “analyse”, “recommend” and “determine” were most frequently used in the learning outcomes of MAF modules at South African universities.

The attention then shifted to the cognitive levels of the questions in the summative examination papers in the MAF discipline. In calculating the average Bloom rating for the summative examinations, it was shown that the cognitive levels in the examination papers were very much in line with the average ratings proposed by NWU, and in some cases even higher. This was confirmed by the percentage of higher- and lower-order questions in the papers. The progression towards higher-order cognitive levels from year to year was also highlighted. The verb frequencies indicated that the top ten verbs in every year for both subjects comprised more than 70% of the total verbs used. The top verbs used in the questions in the summative examination papers at CTA level were “discuss” (level 4), “calculate” (level 4), “suggest”, “recommend”, “comment”, “calculate” (level 3), “identify” (level 4), “discuss” (level 2), “explain” (level 4) and “advise”.

This chapter provided a framework for applying the revised Bloom’s Taxonomy in the MAF discipline. The framework was applied in the analysis of the cognitive levels of learning outcomes and questions in summative assessments of MAF modules at South African universities. An important aspect of constructive alignment is that learning outcomes and summative assessments be aligned. This chapter investigated the learning outcomes and assessments independently. In the following chapter the alignment of assessments to learning outcomes will be addressed.

CHAPTER 10:

EVALUATING THE CONSTRUCTIVE ALIGNMENT OF EDUCATIONAL-LEVEL REQUIREMENTS THROUGHOUT THE LEARNING ASSESSMENT PROCESS

10.1 INTRODUCTION

The importance of alignment in educational programmes was highlighted in the literature chapters of this thesis (chapters 3 to 6). It was indicated that the learning outcomes are the starting point and drivers of constructive alignment and that the basis of OBE is the alignment between the learning outcomes and assessments. The alignment of learning outcomes and assessments is also the basic principle of constructive alignment.

With this in mind this chapter aims to address secondary objective 1.5.2.9 (page 12), namely to critically evaluate the constructive alignment of educational-level requirements throughout the learning assessment process. This evaluation includes the alignment of summative assessments to the learning outcomes at South African universities and the alignment of summative assessments to the outcomes as set by SAICA in the competency framework.

In chapter 8 the process of module development in CA programmes at South African universities was established. This process includes a number of elements, namely the aim of the module, module outcomes, assessment criteria, learning outcomes and assessments. Teaching is also one of the elements, but falls beyond the scope of this study. Each of these elements is informed by a framework to establish the appropriate educational level, as well as by an institutional framework such as the competency framework of SAICA or institutional policies. The pertinence of the level requirements was addressed in chapter 9.

In the third and final phase of this thesis the alignment between learning outcomes and assessment is evaluated as indicated in Figure 10.1. Although constructive alignment involves all the elements of the module, this thesis focuses on the alignment between learning outcomes and assessments.

Figure 10.1: Elements in the process of module development and the informing frameworks

PHASE 1: PROCESS (Chapter 8)		PHASE 2: PERTINENCE (Chapter 9)	
Elements in the process		Level requirements	Institutional frameworks
Aim		NQF	SAICA NWU
Module outcomes		NQF	SAICA NWU
Assessment criteria		NQF Bloom	SAICA NWU
Learning outcomes		Bloom	SAICA
Assessments		Bloom	SAICA
PHASE 3: ALIGNMENT (Chapter 10)			

Source: Researcher

10.2 THE ALIGNMENT OF SUMMATIVE ASSESSMENTS TO LEARNING OUTCOMES AT SOUTH AFRICAN UNIVERSITIES

As mentioned in the introduction of this chapter the alignment of learning outcomes and assessments is the basic principle of constructive alignment. Therefore, the alignment between the cognitive levels of learning outcomes and assessment questions in CA programmes at South African universities was analysed. The results of this analysis are presented in three ways:

- Alignment based on the average Bloom ratings (paragraph 10.2.1);
- Alignment based on the cognitive levels of learning (paragraph 10.2.2); and
- Alignment with regard to the action verbs used in learning outcomes and assessments (paragraph 10.2.3).

Statistical analysis was performed to test the alignment between the learning outcomes and the summative assessment questions (paragraph 10.2.4).

10.2.1 Average Bloom ratings

In chapter 9 the results of the average Bloom ratings for learning outcomes (paragraph 9.4.1, page 240) and assessment questions (paragraph 9.5.1, page 250) were presented. In the next section the alignment of these average ratings of learning outcomes (LO) and assessments questions (AQ) is discussed.

Table 10.1 provides a summary of the average Bloom ratings of learning outcomes and assessment questions as presented in chapter 9 (page 198).

Table 10.1: Average Bloom ratings for learning outcomes and assessment questions

	Management Accounting		Financial Management		MAF	
	LO	AQ	LO	AQ	LO	AQ
2 nd year	2.6	3.2	2.4	3.1	2.6	3.2
3 rd year	2.8	3.8	2.6	3.9	2.7	3.9
CTA	3.6	4.2	3.6	4.3	3.6	4.3

Source: Researcher

At first glance it is clear that, in all years and for both subjects, the average Bloom ratings of the examination questions were noticeably higher than the ratings of the learning outcomes. This implies that the examination questions of South African universities are at higher cognitive levels than those of the stated learning outcomes. This is in contrast to the results of the interviews where the majority of participants (11 out of 14) responded that they made sure that assessment questions were aligned to the learning outcomes (paragraph 8.4.6, page 193):

“When we set our tests we make sure that that which we ask is aligned to the learning outcomes themselves.”

The other three respondents indicated that there was indirect alignment between assessment questions and learning outcomes. The results of the average Bloom ratings, however, contradict this, which might be ascribed to the fact that learning outcomes are based on curricular content. Although the learning outcomes should indicate the cognitive

level by using the appropriate verb, lecturers might see alignment as covering the content, but not necessarily at the appropriate cognitive level.

The above result might also be ascribed to universities' focus on the SAICA competency framework in their CA programmes (paragraph 8.4.1.2, page 182). Lecturers might focus more on the level of assessments than on the level of the learning outcomes in an attempt to prepare students for passing the qualifying examination (ITC) of SAICA. This was confirmed in one of the interviews with academic staff members:

"You know, what's the point of perfecting someone in an area that you know there is very little chance that they [SAICA] are going to assess and therefore the candidate won't succeed in the board exam."

From the interviews it was further established that not all lecturers were aware of the process of developing learning outcomes and that, in some instances, these were not reviewed very often. Thus, there seems to be less focus on learning outcomes than assessments in CA programmes.

10.2.2 Higher-order and lower-order cognitive levels

The following section provides the comparison between the cognitive levels suggested in the learning outcomes and the cognitive levels suggested in the examination questions. The results of the categorisation of learning outcomes and assessment questions into higher-order (HO), intermediate (IO) and lower-order (LO) cognitive levels are compared in Table 10.2 below. The categorisation was based on the categories proposed in chapter 9 (paragraph 9.2.3, page 207). The results are presented as percentages. In the final column an indication is given of whether there is a match between the cognitive level of the learning outcomes and the corresponding examination questions. As in the study of Jones *et al.* (2009), the results are presented as "Ideal", "Close", "Acceptable" or "Not matched".

Table 10.2: Comparison of cognitive levels of learning outcomes and examinations questions

Module	Question levels			Learning outcome levels			Quantitative match
	LOq	IOq	HOq	LOq	IOq	HOq	
Management Accounting							
2nd year	12%	67%	21%	33%	36%	31%	Not matched
3rd year	7%	46%	47%	33%	28%	39%	Not matched
CTA	2%	6%	92%	10%	15%	76%	Not matched
Financial Management							
2nd year	23%	47%	30%	46%	26%	28%	Not matched
3rd year	8%	13%	79%	39%	26%	35%	Not matched
CTA	6%	2%	92%	19%	10%	71%	Not matched
MAF							
2nd year	16%	60%	24%	37%	33%	30%	Not matched
3rd year	8%	28%	64%	35%	27%	37%	Not matched
CTA	5%	3%	92%	14%	12%	74%	Not matched

Source: Researcher

From the above it is evident that all the learning outcomes are at lower levels than those of the summative examination questions in the MAF discipline. In this discipline no match was found between the cognitive levels of learning outcomes and questions on any of the year levels or for any one of the two subjects.

Jones *et al.* (2009) performed a similar analysis on engineering modules and found that, in some cases, there was alignment between learning outcomes and examination questions, whereas in a number of modules there was little alignment. Although they reported that most of the questions were at lower cognitive levels than the learning outcomes, some questions were at higher levels. Lucas *et al.* (2014) also reported that the learning outcomes in biochemistry and zoology modules were at the lower two levels of Bloom's Taxonomy and that this did not correspond to the cognitive levels of learning in the examination questions. For the MAF discipline in this study, however, all questions were at higher levels than the corresponding learning outcomes. This implies that the focus with regard to appropriate cognitive levels in MAF modules at South African universities is on setting the assessments and not on developing the learning outcomes.

Ambrose *et al.* (2010:100) provide another possible reason for learning outcomes being at lower levels, namely that the lower levels are the building blocks upon which the higher

levels are built. Therefore, students will require repeated exposure to the lower cognitive levels. This was confirmed in the analysis of the learning outcomes where it was established that, in some instances, the learning outcomes of the lower levels of the second year of study were repeated in third year and CTA level.

10.2.3 Action verbs

In chapter 9 the action verbs most frequently used by SAICA in the competency framework (paragraph 9.3.3, page 237) and the verbs used in the learning outcomes and summative assessment questions of the universities (paragraph 9.4.4, page 246 and paragraph 9.5.4, page 257) were identified. The six (approximately 10%) verbs most frequently used for the CTA level of study are presented below. The cognitive level associated with the revised Bloom's Taxonomy is indicated in brackets.

Table 10.3: Comparison of action verbs at CTA level

SAICA	South African universities	
Competencies	Learning outcomes	Summative assessments
Identify (4)	Identify (4)	Calculate (3)
Evaluate (5)	Evaluate (5)	Calculate (4)
Analyse (4)	Discuss (2)	Discuss (4)
Consider (5)	Calculate (3)	Identify (2)
Suggest (5)	Understand (2)	Explain (2)
Recommend (5)	Explain (2)	Advise (5)

Source: Researcher

None of the verbs appear in all three of the columns of Table 10.3. It is noticeable that the verbs used by SAICA are at the higher-order cognitive levels of Bloom's Taxonomy, whereas the verbs used in the learning outcomes of the universities are mostly at the lower three levels of the taxonomy, with the exception of "evaluate" and "identify". As far as alignment between SAICA outcomes and universities is concerned, there are no matches. Moreover, there is little alignment of verbs between learning outcomes and university assessment questions. It is only the verb "calculate" that appears in both the learning outcomes and assessment questions of the universities. It is interesting to note that SAICA only uses the verb "calculate" twice for MAF in the competency framework, namely in the competency area of Financial Management at Bloom level 3 (apply).

10.2.4 Statistical analysis

Statistical analysis was performed to test the differences in the cognitive levels of learning outcomes and assessment questions. Statistical analysis was used to answer the following questions regarding the alignment between the cognitive levels of the learning outcomes and the assessment questions of MAF modules at South African universities:

- Is there a statistical difference between the cognitive levels of learning outcomes and assessment questions for the MAF discipline as a whole?
- Is there a statistical difference between the cognitive levels of learning outcomes and assessment questions for Management Accounting and Financial Management?
- Is there a statistical difference between the cognitive levels of learning outcomes and assessment questions between the different year levels?

The average Bloom ratings for learning outcomes and assessment questions were calculated for each subject separately and for MAF as a whole for each year level (chapter 9). These values were used as the input for the statistical analysis.

To test the alignment between the average Bloom ratings of the learning outcomes and the examination questions, Spearman's rank-order correlation was determined. Perfect correlation between the Bloom rating of the learning outcomes and the assessment questions would yield a value of 1. A positive relationship was found between the cognitive levels of the stated learning outcomes of universities and the cognitive levels of the questions in the summative examinations, with an *r*-value of 0.45. The correlation is illustrated in Figure 10.2.

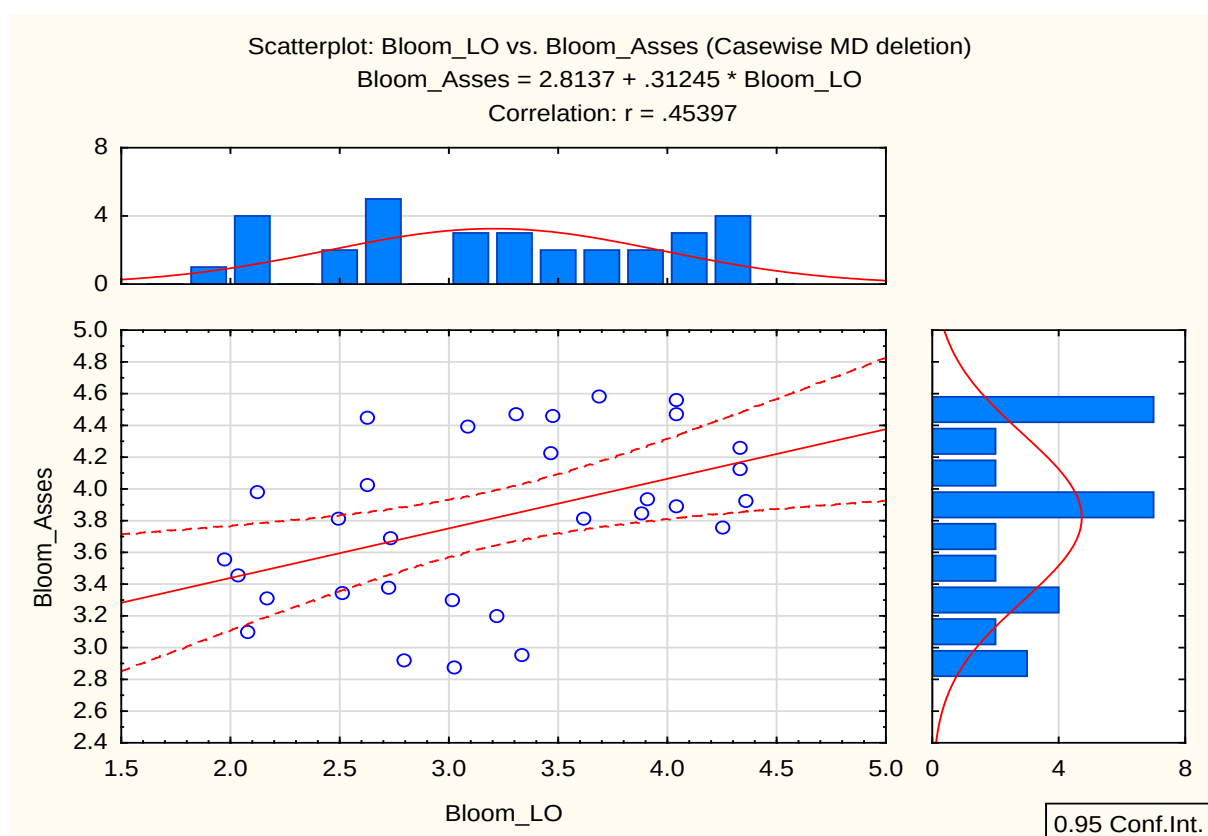


Figure 10.2: Alignment of learning outcomes with assessment questions

Source: Researcher

The relationship between the cognitive level of learning outcomes and assessment questions was examined further with a dependent *t*-test and a Wilcoxon matched-pairs test. The results of these tests are reported below in Table 10.4.

Table 10.4: Differences between the cognitive levels of learning outcomes and assessment questions

		Learning outcomes		Assessment questions		Dependent <i>t</i> -test	Wilcoxon matched pairs
	N	Mean	Std dev	Mean	Std dev	<i>p</i> -value	<i>p</i> -value
MAF	31	3.20	0.76	3.81	0.52	<0.0001*	0.0003*
Mac	16	3.29	0.83	3.74	0.50	0.0197*	0.0557
Fin	15	3.10	0.70	3.89	0.56	0.0006*	0.0022*
2 nd year	9	2.65	0.49	3.17	0.22	0.0394*	0.0858
3 rd year	10	3.03	0.70	3.86	0.31	0.0039*	0.0093*
CTA	12	3.75	0.63	4.25	0.29	0.0459*	0.0712

**p*-value: <0.05, indicates a significant result, assuming a random sample

Source: Researcher

To determine whether the differences in the average Bloom ratings of learning outcomes and assessment questions were statistically significant, two tests, one parametric (*t*-test for dependent samples) and one non-parametric (Wilcoxon matched-pairs test), were performed. The results of the Wilcoxon matched-pairs test and the *t*-test indicate a statistical significant difference between the cognitive levels of learning outcomes and assessment questions for MAF as a whole and Financial Management for all year groups (*p*-values smaller than 0.05). This implies that, for the discipline of MAF as a whole and for Financial Management, the cognitive level of the assessment questions is significantly higher than the cognitive level of the stated learning outcomes. The *t*-test showed a statistically significant difference (*p*-value = 0.0197) between the cognitive levels of learning outcomes and assessment questions of Management Accounting, but the Wilcoxon matched-pairs test did not confirm this (*p*-value = 0.0557).

Investigating the differences in the year levels (for both Management Accounting and Financial Management) the *t*-test showed statistically significant differences between the levels of learning outcomes and assessment questions at all year levels. The Wilcoxon matched-pairs test indicated only a statistical significant difference between the cognitive levels of learning outcomes and assessment questions at third-year level. This confirms the results in paragraph 9.4.1 (page 240) where it was reported that the average Bloom rating of the learning outcomes for the third-year level was exceptionally low. The mean values in Table 10.4 indicate that, for all subjects and in all year groups, the average Bloom rating of the assessment questions was higher than that of the average Bloom rating of the learning outcomes.

10.3 ALIGNING SUMMATIVE ASSESSMENTS WITH THE LEARNING OUTCOMES OF SAICA

The final element of alignment that is addressed is the alignment of the cognitive levels of the questions in the summative examination papers of the universities with the cognitive levels of the learning outcomes of SAICA. Again, it should be noted that the level of the SAICA learning outcomes is at fourth year (CTA). Therefore, only the CTA examination questions were compared to the SAICA learning outcomes. The average Bloom ratings of the summative examination questions of the universities as calculated in chapter 9 (paragraph 9.5.1, page 250) were compared to the Bloom ratings of the SAICA outcomes (paragraph 9.3, page 217):

Table 10.5: Comparison of the Bloom ratings of SAICA outcomes to university examination questions

	Management Accounting	Financial Management	MAF
CTA questions	4.2	4.3	4.3
University outcomes	3.6	3.6	3.7
SAICA outcomes	4.4	4.0	4.2

Source: Researcher

The average Bloom rating of the summative examination questions of South African universities at CTA level is more closely aligned with the learning outcomes of SAICA than with the learning outcomes of the universities themselves. This, again, confirms the universities' focus on the SAICA competency framework when it comes to setting examination papers. Lecturers in CA programmes at South African universities tend to focus on the assessments in preparing their students for the professional examination of SAICA. This was confirmed during the interviews with academic staff members (paragraph 10.3, page 278) and, therefore, explains the alignment of the level of assessments of university examination questions with the level of the SAICA learning outcomes.

The comparison of the cognitive levels of the university learning outcomes with the cognitive levels of the SAICA outcomes confirms the above.

Table 10.6: Comparison of the cognitive levels of SAICA outcomes to university examination questions

	Management Accounting		Financial Management		MAF	
University questions						
Lower order	2.1%	7.6%	6.1%	7.9%	4.7%	7.8%
Intermediate	5.5%		1.8%		3.1%	
Higher order	92.4%	92.4%	92.1%	92.1%	92.2%	92.2%
University outcomes						
Lower order	9.6%	24.2%	18.9%	28.6%	13.6%	26.1%
Intermediate	14.6%		9.7%		12.5%	
Higher order	75.8%	75.8%	71.4%	71.4%	73.9%	73.9%

	Management Accounting	Financial Management	MAF
SAICA outcomes			
Lower order	3.4%	10.2%	6.6%
Intermediate	5.5%	4.3%	5.5%
Higher order	90.1%	85.4%	87.9%

Source: Researcher

It is evident from the data on cognitive levels presented in Table 10.6 that the questions in the CTA summative examination papers are more aligned to the learning outcomes in the SAICA competency framework than those of the universities themselves. For Management Accounting the percentage of questions at the three higher cognitive levels (analyse, evaluate and create) of the revised Bloom's Taxonomy is much lower than that of the questions (75.8% and 92.4% respectively). This is the same for Financial Management, with only 71.4% of learning outcomes at the higher cognitive levels, but 92.1% of examination questions at the higher levels of learning. Following on this, the university learning outcomes for the combined discipline of MAF are at lower levels than those of the examination questions. However, compared to the SAICA outcomes, the distribution of questions between the cognitive levels of learning is much more aligned. The questions for Management Accounting are 92.4% higher-order outcomes, while the higher-order SAICA outcomes are at 90.1%. A total of 92.1% of university questions are at the higher-order levels of learning, while 85.4% of SAICA learning outcomes are higher-order outcomes.

Questions in the summative examination papers of SAICA-accredited universities, therefore, seem to be more aligned to the SAICA learning outcomes than to the learning outcomes of the universities themselves.

10.4 SUMMARY

This chapter aimed to address secondary objective 1.5.2.9 as set out in chapter 1 (page 12). The objective was to critically evaluate the constructive alignment of educational-level requirements throughout the learning assessment process. The evaluation of alignment commenced with evaluating the alignment between the questions in the summative examination papers of the universities and the stated learning outcomes. This analysis found little alignment. The average Bloom ratings for the questions in the examinations were significantly higher than those for the stated learning outcomes for all three year levels and both subjects (Management Accounting and Financial Management). A comparison between the cognitive levels of the questions and those of the learning outcomes also showed that the

percentage of questions at the higher cognitive levels was much higher than that of the learning outcomes. Again, this was the case for all three year levels and both subjects. This is in contrast to the literature where it was reported that the cognitive level of examination questions was lower than that of the learning outcomes. It was concluded that lecturers in CA programmes at South African universities tend to concentrate more on the level of the examination questions than that of the learning outcomes. Another reason for learning outcomes being at lower cognitive levels than examination question was found in the literature. It was stated that students need to build on the lower levels and needed repeated exposure to the lower levels of learning in order to reach the higher levels.

In a comparison of the cognitive levels of learning outcomes and examination questions no match was found at any of the year levels for both Management Accounting and Financial Management. This finding was confirmed by a statistical analysis of the average Bloom ratings of the learning outcomes and the questions in the summative examinations.

The data analysis concluded with an evaluation of the alignment between the questions in the summative examinations of the universities and the learning outcomes set by SAICA. It was clear that the universities' summative examinations were more aligned to the outcomes of SAICA than to the outcomes of the universities themselves. This, again, confirmed the fact that universities place their focus on SAICA requirements.

With this, the objective of critically evaluating the constructive alignment of educational-level requirements throughout the learning assessment process was reached. In the final chapter of this thesis the conclusions and recommendations based on the findings of this study will be presented.

CHAPTER 11:

CONCLUSIONS, RECOMMENDATIONS AND REFLECTIONS

11.1 INTRODUCTION

The study focused on the pertinence and alignment of educational-level requirements to learning outcomes and summative assessments in CA programmes at South African universities accredited with SAICA. The purpose of this final chapter is to conclude and make recommendations regarding constructive alignment in CA programmes at South African universities. The conclusions and recommendations are based on the combined findings of the literature review (chapters 3 to 6) and the empirical study (chapters 8 to 10) as presented in this thesis. Findings regarding the process of developing learning outcomes and assessments in CA programmes (chapter 8) informed the analysis of the levels of learning outcomes and assessments (chapter 9) and, ultimately, the evaluation of constructive alignment at South African universities (chapter 10).

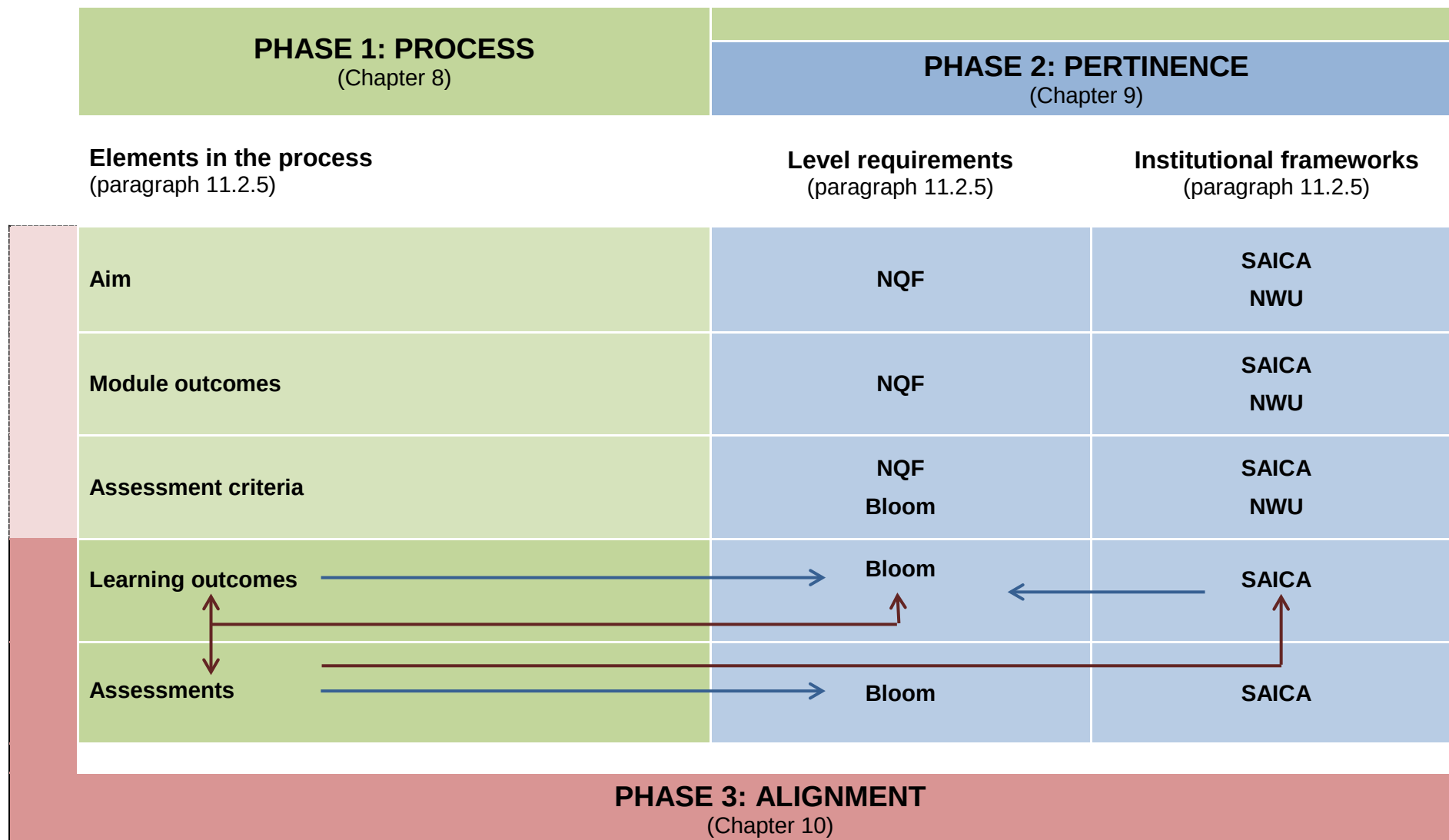
The remainder of this chapter is structured as follows: In the first section the conclusions regarding the literature review will be presented (paragraphs 11.2.1 to 11.2.4), followed by the results of the three phases of the empirical study.

11.2 CONCLUSIONS

The diagram in Figure 11.1 (page 283) serves as a summary of this thesis, and the conclusions will be discussed accordingly. The study covered the following three aspects of modules in CA programmes at South African universities:

- The **process** of module development, including institutional frameworks and educational-level requirements (chapter 8);
- The **pertinence** of the educational-level requirements (chapter 9); and
- The constructive **alignment** of educational-level requirements throughout the learning assessment process (chapter 10).

Figure 11.1: Thesis summary



Source: Researcher

- The first four secondary objectives (1.5.2.1 to 1.5.2.4, page 11) of this study were addressed by a literature review (chapters 3 to 6). The conclusions gained from these secondary objectives are presented in paragraphs 11.2.1 to 11.2.4 below.
- The next two secondary objectives (1.5.2.5 and 1.5.2.6, page 11) were addressed in chapter 8. These two objectives addressed the **process** aspect in Figure 11.1 above. Everything pertaining to this section is indicated in green.
- Chapter 9 focused on the next two secondary objectives (1.5.2.7 and 1.5.2.8, page 12) which are related to the **pertinence** of level requirements. This section is indicated by blue in Figure 11.1.
- The final secondary objective addressed in the empirical study (paragraph 1.5.2.9, page 12) dealt with the **alignment** in CA programmes and is presented in red in Figure 11.1. This objective was addressed in chapter 10.
- The conclusions on the empirical study addressed the final secondary objective of this study (1.5.2.10, page 12) (paragraphs 11.2.5 to 11.2.8) and will be discussed according to Figure 11.1.

11.2.1 The training of CAs at South African universities within the higher educational system

Chapter 3, in addressing the first secondary objective of this study (objective 1.5.2.1, page 11) set the scene for the study. Chapter 3 (page 46) commenced with the context of higher education, and specifically higher education in South Africa. Quality in higher education in South Africa is assured by the HEQC. The NQF provides for a single integrated framework for learning achievements. In 2012 SAQA published the NQF level descriptors. This document provides level descriptors for the ten levels of the NQF. Level descriptors describe the level of achievement expected of a learner at a given level of study and become more difficult as the learner progresses through the levels of study. It was highlighted that, in South Africa, it is critical that a qualification be at the appropriate level of study. It was also shown that the NQF level descriptors should be used to inform the development of assessment criteria and detailed learning outcomes.

CBE (paragraph 3.4, page 52) was borne from the need for students to be able to apply their knowledge instead of merely accumulating knowledge. In CBE learning is driven by predetermined outcomes. CBE has expanded worldwide as educators have come to embrace the advantages of being able to determine whether learning outcomes have been reached.

The literature review on accounting education (paragraph 3.5, page 54) revealed that, although accounting associations have been changing to competency-based approaches, educational institutions have not changed the way in which they develop, deliver and assess their syllabuses. It was also confirmed that higher education institutions focus on technical knowledge and not on the development of skills. The question was raised as to whether the high level of technical knowledge of South African CAs was enough for them to remain highly regarded.

SAICA was shown to be the foremost professional body for CAs in South Africa (paragraph 3.6, page 56). The process of qualifying as a CA(SA) was highlighted. SAICA follows a competency-based approach and has published a competency framework in which the competencies required from a prospective CA are set out. Universities use this competency framework as a guideline to prepare their learners for the first SAICA examination.

The major role players in the training of CAs in South Africa were identified in chapter 3 (paragraph 3.7, page 58). These role players are the professional body, SAICA, the universities themselves and the CHE. Quality in CA programmes at South African universities was shown to be a contentious issue. The literature revealed that SAQA delegates the responsibility to ensure quality in South African CA programmes to SAICA. In turn, SAICA ensures quality in CA programmes by accrediting certain institutions for the training of CAs.

11.2.2 The process of developing outcomes considering the role of SAQA, SAICA and institutional policies, as well as other conceptual frameworks such as taxonomies of learning

The second secondary objective of this study (objective 1.5.2.2, page 11) was to conceptualise the process of developing outcomes from the literature considering the role of SAQA, SAICA and institutional policies, as well as other conceptual frameworks such as taxonomies of learning. In reaching this objective the process of developing a module was investigated, including all aspects involved in the development of the module. It was found that there are different frameworks guiding the aspects included in module development.

The process of module development was addressed in paragraph 4.2 (page 67). The discussion was based on a basic map of module development which was identified in the literature review (Figure 4.1, page 68). It should be noted that the link between learning outcomes and assessments was shown to be the most vital link in the process and that

assessment questions have to test whether the learning outcomes have been achieved. The following elements in the process of module development were highlighted:

- aim of the module;
- level descriptors;
- learning outcomes; and
- assessment criteria.

The **aim of the module** indicates the general direction with regard to its content and provides an indication of what the students are supposed to learn. The aim has to be in line with the mission of the university and with the goals of the professional body. **Level descriptors** assist educators in developing the learning outcomes and assessment criteria of the module. The level descriptors provide an indication of the achievement expected of the student at any given level of study and should become more challenging as the learner moves from one level of study to the next. **Learning outcomes** are said to be at the centre of the process of constructive alignment. Learning outcomes not only define what the learner is expected to know, understand or be able to do after completion of a certain module, but also how that knowledge should be demonstrated. Learning outcomes have to be precise and measurable and should contain a verb, which refers to the applicable cognitive process, and a noun, which indicates the required knowledge. **Assessment criteria** provide an indication to students as to how their performance will be judged. Assessment criteria are usually based on the learning outcomes, but are more specific.

11.2.2.1 *Frameworks for the development of learning outcomes*

As learning outcomes were shown to be central to the process of constructive alignment, possible frameworks for the development of learning outcomes were identified from the literature (paragraph 4.3, page 78):

- SAQA;
- SAICA; and
- taxonomies of learning.

In South Africa learners have to meet the requirements as set out by the HEQF and **SAQA** in the NQF level descriptors document. This document provides level descriptors for each level of study and becomes progressively more challenging as the learner moves to each next level. A level descriptor describes the level of knowledge and achievement of learning expected of the learner at the given level of study and provides the basis for the formulation of learning outcomes and assessment criteria. The **SAICA** competency framework sets out the competencies that are expected of a prospective CA upon entry into the profession.

SAICA specifies three levels of proficiency which indicate the level of knowledge required from the student, the extent to which they have to be able to apply and integrate the knowledge, and the complexity of the problems that they need to solve. The competency framework consists of specific competency areas (such as strategy, risk management and governance, accounting and external reporting, auditing and assurance, financial management, management decision making and control, and taxation). The outcomes or competencies expected of learners are detailed for each of the competency areas. **Taxonomies of learning** serve as tools to measure students' thinking and learning. Bloom's Taxonomy of Educational Objectives and the revised Bloom's Taxonomy were identified as the two major frameworks informing the development of learning outcomes.

Bloom's Taxonomy was identified as one of the taxonomies that could be used throughout all levels and subjects as the basis for determining educational goals or objectives. The learning outcomes were identified as knowledge, comprehension, application, analysis, synthesis and evaluation. It was further noted that Bloom categorised these outcomes into two categories, namely lower-order outcomes (knowledge and comprehension) and higher-order outcomes (application, analysis, synthesis and evaluation). The six levels were shown to be hierarchical; therefore, to be able to master a higher level, the assumption is that the lower levels have already been mastered. The six outcomes or levels of the taxonomy were explained in detail, making it easier to categorise learning outcomes according to one of the levels. It was noted also that Bloom's Taxonomy is used during the entire educational process and specifically for setting and assessing educational objectives or learning outcomes. Furthermore, the taxonomy has been used extensively to analyse the levels of assessments and learning outcomes in order to determine the spread of learning outcomes and assessment questions across the six levels.

Another taxonomy of learning identified from the literature is the revised Bloom's Taxonomy. The revised taxonomy is presented as a two-dimensional framework with a knowledge dimension and a cognitive dimension. It was noted that the revised Bloom's Taxonomy should lead to improved curriculums and improved teaching and help educators to achieve alignment between learning outcomes and assessments.

Cognitive skills can be categorised as lower order or higher order (paragraph 4.5, page 97). Authors, however, have different opinions regarding the grouping into higher and lower order. Some authors group the two lower levels of Bloom's Taxonomy (remember and understand) as lower-order cognitive skills, while the remaining four levels (apply, analyse, evaluate and create) are seen to be higher-order level skills. Others believe that the lower three levels

should be seen as lower order, while the three higher-level outcomes require processing activities at a higher level and should, therefore, be classified as higher-order skills. Yet another author added a third category (intermediate) by stating that application can be seen as the link between lower- and higher-order skills. Authors agree that learners need the lower-order skills as a foundation or knowledge base to enable critical thinking, but that the higher-order skills should begin to dominate in the later years of study.

It was shown that action verbs are the most important element of learning outcomes (paragraph 4.6, page 99). Certain action verbs are activated in order to achieve a learning outcome. The verb informs the student of exactly what is expected with regard to achievement. It was also noted that verbs should be specific and enable the related behaviour to be measured. Verbs can, however, overlap between the cognitive levels of learning.

11.2.3 The application of summative assessment in professional training in higher education, as well as the principles that should be adhered to when setting and delivering assessments

In chapter 5 (page 104) the importance of assessment in the learning process was confirmed. It was shown that assessment is central to the learning process and that the cognitive level of summative examinations could have an effect on how students approach their studies and their level of learning. It is critical that educators think about their assessment process, as this is probably the most important tool they can use to help their students learn.

Assessment has multiple purposes, which include certification, student learning, quality assurance and lifelong learning (paragraph 5.2, page 105). A distinction was also made between formative assessment and summative assessment (paragraph 5.4, page 109). Formative assessments are continuous activities throughout the semester where students have the opportunity to show and monitor their progress. Summative assessment occurs when teaching has been concluded and serves the purpose of determining whether the student has learned what was intended.

The principles of assessment were identified and discussed (paragraph 5.5, page 113). The principles of assessment addressed in this study are validity, reliability and transparency. Validity is when an assessment tests what it should be testing, while reliability is when an assessment achieves consistent results across markers and methods. The assessment is transparent when the information and guidance on the assessment are clear and available to

all interested parties. This includes the development and communication of clear learning outcomes.

It was further concluded that the level of assessment has a direct impact on the level of learning and that thinking is enhanced when questions are set at higher cognitive levels (paragraph 5.6, page 116). This shows the importance of the level of examinations. However, previous studies indicated that the majority of questions are often at the lower-order cognitive levels.

11.2.4 The process of constructive alignment and its role in enhancing student learning

From chapter 1 of this study the importance of constructive alignment in modules were emphasised. Chapter 6 (page 124) focused on aligning assessments to educational level requirements and the effect thereof on learning. It was reported that learning outcomes are the starting point of constructive alignment and that alignment could, thus, start with the skills and knowledge required from the student at the completion of the module (paragraph 6.2.1, page 125). After this, the teaching activities that will facilitate the student in reaching the intended outcomes should be developed, followed by the assessments to test whether the intended outcomes have been achieved.

It was concluded that students' learning could be enhanced by constructive alignment, as they would have a greater chance of reaching the intended learning outcomes in a constructively aligned module (paragraph 6.2.2, page 128). Furthermore, it was reported that the validity of assessments relies on the alignment between learning outcomes, teaching and assessments.

The conclusion was drawn that learning outcomes are the drivers of constructive alignment and that the alignment of learning outcomes and assessment tasks is the basic principle of constructive alignment (paragraph 6.3, page 131). It follows that the cognitive levels of the learning outcomes and the assessment questions have to be the same and that assessment questions have to flow directly from the learning outcomes.

Despite the advantages of constructive alignment, it was found that not enough attention is being paid to the alignment of assessments with learning outcomes. Several studies were listed as proof of this finding (Table 6.2, page 137).

11.2.5 The process of developing learning outcomes and setting assessments for the training of CAs at South African universities

The fifth and sixth secondary objective (paragraphs 1.5.2.5 and 1.5.2.6, page 12) was to critically analyse the **process** of developing learning outcomes and setting assessments for the training of CAs at South African universities and to provide a framework for the development of module outcomes, learning outcomes and assessments. This objective was addressed in chapter 8 (page 164) by exploring the **process** of developing learning outcomes and assessments for CA programmes at South African universities. This was achieved by consulting the literature review, analysing institutional documents of NWU and conducting interviews with staff from NWU Academic Support Services and academic staff of the South African universities involved in the study. The elements in the process of module development are indicated in green in Figure 11.1. In analysing the process, the different elements in the process were identified and presented in a map, after which the frameworks or taxonomies influencing each of the elements were identified.

11.2.5.1 *The role players in CA programmes at South African universities*

The first part of analysing the process of module development was to gain an understanding of the institutions or frameworks that inform this process. In chapter 8 it was concluded that the role players in CA programmes at South African universities are (paragraph 8.2, page 165):

- the CHE through the HEQC and SAQA;
- the professional body, SAICA; and
- the universities themselves.

The role of each of the above role players in CA programmes was explored and the findings are summarised in the following section:

SAQA

It was concluded that the NQF level descriptors provided by SAQA serve as a basis for the development of module outcomes and assessment criteria. Qualifications at South African universities have to adhere to the NQF. For this reason, it is imperative that lecturers be familiar with the NQF level descriptors in order to develop appropriate module outcomes and learning outcomes. This was, however, shown not to be the case in CA programmes at South African universities. Only 28.6% (4 out of the 14) lecturers who were interviewed were familiar with the NQF level descriptors. Another seven had heard of them, but were not familiar with the details of the document, while three lecturers had never heard about them.

SAICA

The professional body for CA(SA)s, namely SAICA, was also indicated as a stakeholder in CA programmes. Quality assurance of CA programmes in South Africa is perceived to be delegated to SAICA by SAQA. This implies that universities might be basing their outcomes and assessments on the competency framework of SAICA. This was identified as problematic, because this could lead to universities' placing too strong focus on SAICA accreditation and neglecting government frameworks such as the NQF level descriptors. The focus of South African universities was proven to be on SAICA, as academics indicated that they relied on the SAICA competency framework for the development of module outcomes, learning outcomes and assessments. From the interviews with academic staff at all the universities, it was concluded that lecturers perceived SAICA to be the major role player in all aspects of CA programmes. It was also confirmed that lecturers share the perception that quality is delegated to SAICA by SAQA.

Institutional policies

It was concluded that the policies and procedures of the universities themselves have to be taken into account in the development of modules outcomes, learning outcomes and assessments in CA programmes at South African universities.

11.2.5.2 *A framework for module development in CA programmes at South African universities*

NWU was used as a case study to explore the processes involved in module development in CA programmes at South African universities (paragraph 8.3, page 167). The process of module development was based on a map provided by Moon (2002:16) (Figure 8.1, page 165). The map provided by Moon was adjusted for application in CA programmes at South African universities based on the literature review, the analysis of the NWU institutional documents, interviews with staff of NWU Academic Support Services and academic staff from the chosen universities. The proposed map for CA programmes at South African universities is presented in Figure 11.2:

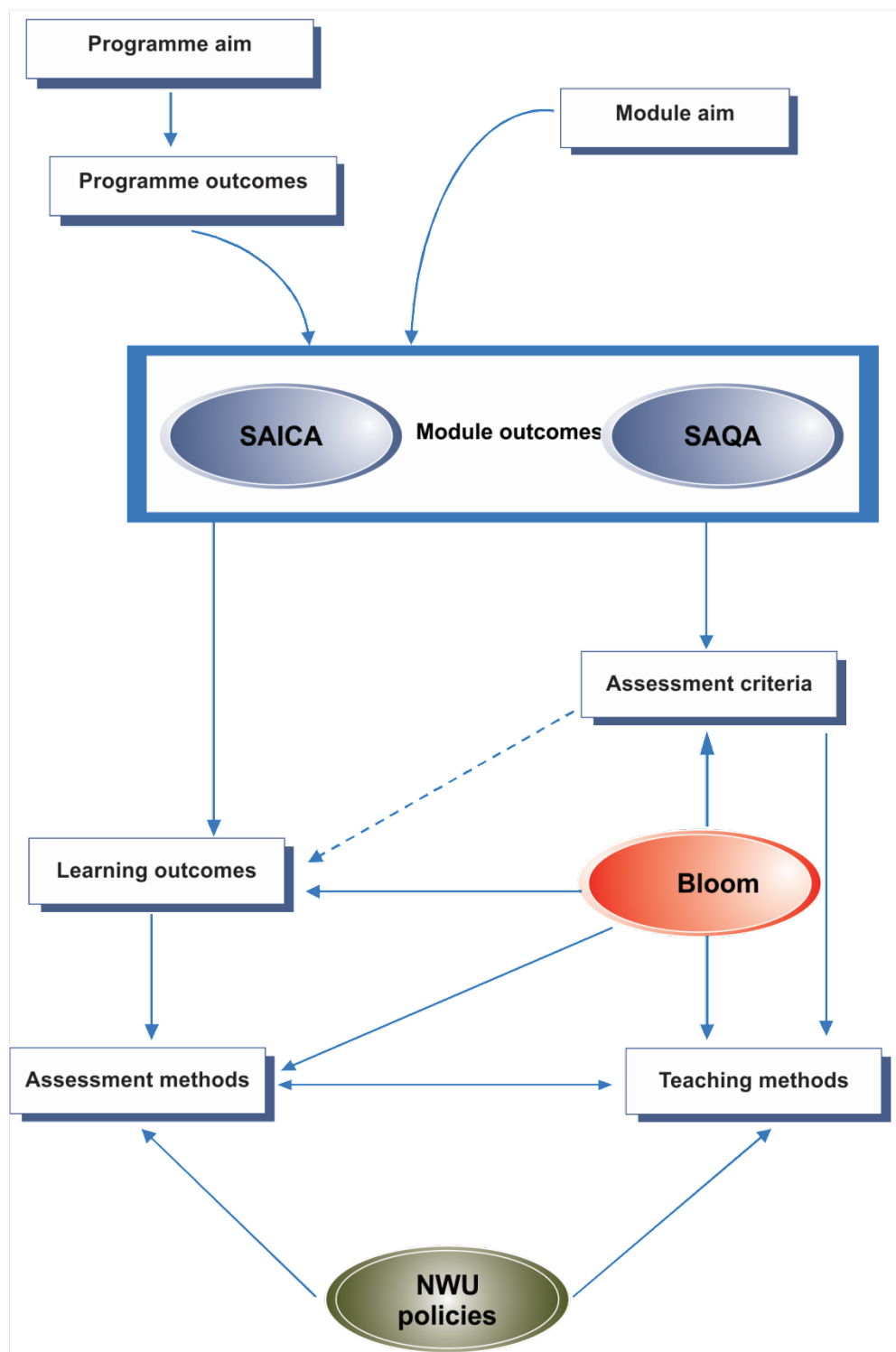


Figure 11.2: Framework for module development in CA programmes at South African universities

Source: Researcher

It was clear from the institutional documents that the teaching and learning practices at NWU have to support the university's vision, mission, goals and values. It was also determined that the NWU Teaching and Learning Policy is in line with the national outcomes-based approach

which prescribes that students should know exactly what is expected of them with regard to knowledge and skills and how the knowledge and skills will be assessed.

Although the starting point of the map provided by Moon (2002:16) was the aim of the module, it was concluded that, at NWU, the process should start with the aim of the programme, followed by the aim of the module within that programme. Therefore, the framework for CA programmes has the aim of the programme as starting point, followed by the programme outcomes and the aim of the module. The elements of the framework are presented below:

- ***Module outcomes***

It was concluded that the module outcomes of any module are crucial because they inform the learning outcomes and, thereby, influence teaching and learning (paragraph 8.3.2, page 170). The difference between module outcomes and learning outcomes was highlighted from the literature, interviews with staff of Academic Support Services and the institutional documents of NWU. Module outcomes provide students with an indication of what they should know and should be able to do after completion of a module. Module outcomes are broad statements of competence and not as specific as learning outcomes. They do not necessarily pertain to what will be tested in assessments, but provide an indication of the competencies expected of the student instead. For this reason, it does not have to contain measurable action verbs. In South Africa module outcomes should be based on the NQF level descriptors for the particular level of study. Besides the NQF level descriptors, the requirements of the professional bodies should be taken into account.

Although it was concluded that module outcomes should be based first and foremost on the NQF level descriptors, and to a lesser extent on the SAICA competency framework, academics lecturing modules within CA programmes indicated that their module outcomes were based mostly on the SAICA competency framework. Of the 14 lecturers who were interviewed only one indicated that their module outcomes were based on the NQF level descriptors and the SAICA competency framework. SAICA accreditation seemed to play a role in creating the impression that everything, including module outcomes, has to be based on the competency framework. There was uncertainty among lecturers as to whether their module outcomes were aligned with the NQF level descriptors. This is, however, understandable given the lack of awareness among academic staff regarding this document. It was also established that some lecturers were under the impression that accreditation with SAICA implied that module outcomes be aligned to the NQF level descriptors.

- ***Assessment criteria***

The assessment criteria flow from the module outcomes and are more specific than the latter (paragraph 8.3.4, page 176). Assessment criteria provide an indication of how the knowledge and skills required from the student will be assessed. In turn, the assessment criteria are then used to develop the learning outcomes of a module. The use of assessment criteria is a requirement for the registration of a module. In some cases the learning outcomes of a module serve as assessment criteria because learning outcomes also state what the student should be able to do. Assessment criteria are informed by the NQF level descriptors, the SAICA competency framework and the revised Bloom's Taxonomy.

Lecturers at South African universities who were interviewed were, however, not aware of what assessment criteria are and indicated that they were not used in their modules. Of the 14 participants, only one was familiar with the term and indicated that assessment criteria existed for the particular module. It was concluded that, although assessment criteria are required by the CHE for registration of any module in a degree programme, academic staff were not aware of what they are or whether their module does indeed have assessment criteria. The development of assessment criteria is a requirement for registration with the CHE, but it might be that it is seen as an exercise only for this purpose and that the criteria are not communicated to the students, or even the lecturers. The learning outcomes seem to be fulfilling the role of assessment criteria.

- ***Learning outcomes***

Learning outcomes differ from module outcomes in that they are more detailed statements of what is expected of the student (paragraph 8.3.3, page 173). Where module outcomes provide a broad indication of the competencies required, the learning outcomes often focus on curricular content and specific requirements with regard to what is expected of students. Therefore, learning outcomes should contain specific action verbs that are measurable.

It was established that learning outcomes should be informed by the SAICA competency framework and an appropriate taxonomy of learning such as the revised Bloom's Taxonomy (paragraph 8.3.3, page 173). This seems to be the case in MAF modules at South African universities. The majority of academic staff interviewed did indicate that learning outcomes of their modules were based on the SAICA competency framework (paragraph 8.4.3, page 185). The other framework identified for informing the development of learning outcomes is Bloom's Taxonomy. However, it did not seem as if the lecturers in CA programmes applied Bloom's Taxonomy in the development of their learning outcomes. Six of the lecturers were not even aware of the existence of the taxonomy. One of the lecturers did indicate that

Bloom's Taxonomy was the major influence in the development of their learning outcomes, whereas others felt that it did play an indirect role. It was also found that the learning outcomes of some universities were based on textbooks. This could mean that learning outcomes might focus on lower-order cognitive levels, as it has been shown that the learning outcomes in textbooks often focus on the lower cognitive levels of learning (paragraph 9.4.1, page 240).

- **Assessment**

Assessments should be based on the assessment criteria and learning outcomes (paragraph 8.3.5, page 179). For this reason, it was concluded that assessments in modules within CA programmes should be informed mainly by the SAICA competency framework. Because of the fact that the competency framework pertains to fourth-year level modules, Bloom's Taxonomy should be used to ensure the appropriate cognitive level of assessments at all year levels.

During the interviews with academic staff the focus on the SAICA competency framework was again apparent (paragraph 8.4.5, page 189). The majority of the lecturers (12 out of 14) indicated that their assessments were based first and foremost on the SAICA competency framework. From the interviews, the focus on preparing students for the SAICA ITC examination became evident. Bloom's Taxonomy was mentioned, and one lecturer indicated that their assessments were based on the taxonomy. Other lecturers mentioned that the taxonomy was used in developing the assessments, although not as the major influence. It was apparent that this is because of the increase in the level of difficulty between year levels.

11.2.6 An appropriate taxonomy of learning for application in the MAF discipline

A detailed explanation of Bloom's Taxonomy and the revised Bloom's Taxonomy was presented in chapter 4 (paragraph 4.3.3, page 81). In chapter 7 the arguments for the use of these taxonomies for the evaluation of learning outcomes and assessment questions were presented (paragraph 7.6.3, page 153). From these arguments it was concluded that the revised Bloom's Taxonomy is an appropriate framework for the evaluation of learning outcomes and assessment questions in higher education. It was also discovered that subject-specific guidelines for the interpretation of the levels in the subjects of Management Accounting and Financial Management are needed in order to categorise the learning outcomes and assessment questions in this discipline. Therefore, a framework for the evaluation and categorisation of learning outcomes and assessment questions for MAF was developed and presented in chapter 9 (paragraph 9.2, page 199). With this, the seventh secondary objective (1.5.2.7, page 12) was addressed.

In developing this framework the levels of the revised Bloom's Taxonomy's application to MAF were presented. Furthermore, the action verbs that are generally used in accounting education were identified from the literature and listed. It was also determined that different authors hold different views regarding the grouping of the six levels of the revised Blooms' Taxonomy into higher-order and lower-order cognitive levels. Taking the three levels of proficiency of SAICA (awareness, initiates the task, completes the task) into account, it was proposed that three categories be applied in CA training, as the middle level (apply) is often seen as a link between lower-order and higher-order cognitive levels. The intermediate level in the SAICA competency framework also corresponded with level three (apply) of Bloom's Taxonomy. Therefore, the three categories proposed for CA training are as follows:

Table 11.1: Classification of cognitive levels of CA programmes

SAICA level of proficiency	Bloom's cognitive level	Classification
Level A – Awareness	Remember and understand	Lower order
Level I – Initiates the task	Apply	Intermediate order
Level X – Completes the task	Analyse, evaluate and create	Higher order

Source: Researcher

The guidelines as set out by NWU and the literature were considered and the following guidelines regarding the spread of assessment questions between the above three cognitive levels are proposed for CA programmes:

Table 11.2: Proposed guidelines for cognitive levels of learning for CA programmes

	Lower order	Intermediate	Higher order
	Remember Understand	Apply	Evaluate Create
NQF 6 (2 nd year)	60%		40%
NQF 7 (3 rd year)	30%	10%/20%	50%/60%
NQF 8 (4 th year)	20%		80%

Source: Researcher; adapted from NWU (2013)

The percentages provided in the literature were much lower than those proposed by NWU and, therefore, the focus was on the NWU guidelines. The 50% guideline for the third-year level could move up to 60%, as the 20% proposed for the “apply” level includes “difficult application”.

The framework for the application of the revised Bloom's Taxonomy for MAF was presented in chapter 9 (paragraph 9.2.4, page 212) and applied to analyse the cognitive levels of the learning outcomes of SAICA (paragraph 9.3, page 217), the cognitive levels of the learning outcomes of the MAF modules at South African universities (paragraph 9.4, page 239) and the cognitive levels of the assessment questions of the MAF modules at South African universities (paragraph 9.5, page 250). The verbs identified as being used by SAICA and the South African universities in the learning outcomes and assessments of MAF modules, were added to the original framework for the application of the revised Bloom's Taxonomy for MAF and is presented in Table 11.3.

Table 11.3: Interpretation of the revised Bloom's Taxonomy for MAF

Cognitive level					
Lower order		Intermediate	Higher order		
Level 1: Remember	Level 2: Understand	Level 3: Apply	Level 4: Analyse	Level 5: Evaluate	Level 6: Create
Recall information without attributing any meaning	Relating and organising information previously acquired	Use information, rules or principles to solve a problem or use known theory in a different context	Deconstruct a complex problem into parts and understand how the parts fit together	Qualitative or quantitative judgements about value of ideas, solutions, or methods based on certain criteria and argument	Use different elements to create a new structure Combine new material with previous experience Use several sources and put them together
Demonstrate by					
Define and recall	Translation, interpretation and extrapolation	Applying theories or methods Choosing appropriate methods (simple)	Calculations, analysis, classifications and calculations where more than one method is involved	Discussions, arguments or reasoning to perform analysis or make decision	Applying more than one technique, adjustments, projections or recalculations to create a plan, solution or structure
Typical requirements regarding information					
Pure recall	Translate or interpret or make predictions based on information	Identify and use information to solve problem	Extraction of key information from case study Organising information given in the question by deconstruction Extracting information from a case study	Organising information from various sources Decide whether information is relevant Judge information for accuracy	Large amounts of information in complex case studies

Typical requirements regarding techniques or methods					
Define, list or explain a technique or method	Contrast techniques or methods or provide strengths and weaknesses	Apply a given technique to a problem Choose the appropriate technique (simple)	Choose a method or technique by analysing the structure of information	Identify various techniques or methods and judge appropriateness of each to solve a problem Identify various methods to solve a problem Choose a method most suitable to solve a problem Critique, contrast and compare methods	Devise or create a method to solve the problem
Typical requirements					
Pure recall	Contrasting	Apply technique if technique is given	Some sort of inference	Some sort of judgement	To devise something new
Examples of tasks					
	Translate into other terms Interpret graphs, charts or tables Make estimates based on trends	Apply known techniques to known or unknown situations to solve a problem	Distinguish relevant information from non-relevant information or determine how events fit or function within an organisation	Judging the appropriateness of a procedure to solve a problem or accomplish a task	Producing a report Planning a procedure to solve a problem or accomplish a task
Typical question type					
Simple question	Simple question	Known or unknown situation with limited amount of information	Unknown situation with more information	Unknown situation with larger volume of information	More complex problems Large volumes of information

Typical accounting education action verbs					
Calculate, Define, Describe, Explain, Identify, List, Memorise, Name, Order, Outline, Recall, Recognise, Select, State, Write	Be aware of, Classify, Comment, Compare, Comprehend, Convert, Demonstrate, appreciation, Demonstrate awareness, Demonstrate understanding, Describe, Discuss, Distinguish, Estimate, Explain, Express, Extend, Generalise, Give examples, Identify, Illustrate, Indicate, Infer, Interpret, Name, Paraphrase, Predict, Recognise, Restate, Rewrite, Summarise, Translate, Understand	Allocate, Apply, Arrange, Assign, Calculate, Change, Choose, Complete, Compile, Compute, Construct, Demonstrate, Describe with evaluation, Determine, Discover, Document, Draft, Employ, Exclude, Explain, Incorporate, Interpret, Manipulate, Modify, Operate, Perform, Prepare, Prorate, Rank, Reconcile, Relate, Report, Schedule, Select, Show, Solve, Tabulate, Use, Utilise, Value, Write	Analyse, Assess, Break down, Calculate, Categorise, Comment (interpret), Compare, Construct, Contrast, Criticise, Determine, Differentiate, Discuss, Distinguish, Estimate, Examine, Experiment, Explain, Highlight, Identify, Indicate, Infer, Interpret, Investigate, List (identify), Manipulate, Model, Order, Prioritise, Produce, Question, Relate, Reorganise, Review, Revise, Separate, Set up, Summarise, Tell, Write	Advise, Apply (to make decision), Appraise, Argue, Assess, Calculate, Choose, Comment, Compare (complex), Conclude, Consider, Contrast (complex), Criticise, Defend, Determine, Discriminate, Estimate, Evaluate, Explain, Interpret, Judge, Justify, Make decision, Monitor, Motivate, Predict, Rate, Recommend, Relate, Review, Select, Substantiate, Suggest, Summarise, Support, Value	Arrange, Assemble, Collect, Combine, Compile, Compose, Construct, Create, Design, Determine, Develop, Devise, Forecast, Formulate, Generate, Incorporate, Integrate, Invent, Manage, Organise, Plan, Prepare, Propose, Rearrange, Reorganise, Reconstruct, Relate, Resolve, Revise, Set up, Solve, Summarise, Synthesise, Tell, Write

Source: Researcher

11.2.7 Critical evaluation of the application of pertinent educational-level requirements

The eighth secondary objective (paragraph 1.5.2.8, page 12) of this study was to critically evaluate the application of pertinent level requirements by:

- Evaluating the cognitive levels of the competencies in the SAICA competency framework by applying a developed framework for application of the taxonomy of learning in the MAF discipline (paragraph 11.2.7.1);
- Evaluating the cognitive levels of the set learning outcomes by applying the developed framework for application of a taxonomy of learning in the MAF discipline (paragraph 11.2.7.2); and
- Evaluating the cognitive levels of the summative assessments by applying the developed framework for application of a taxonomy of learning in the MAF discipline (paragraph 11.2.7.3).

11.2.7.1 *The cognitive levels of the competencies in the SAICA competency framework*

In order to determine the application of the revised Bloom's Taxonomy to the SAICA competency framework, an analysis of the competencies in the competency areas of Management Decision Making and Control and Financial Management was performed (paragraph 9.3, page 217). SAICA provides a summary of the main outcomes and then expands these main outcomes into more detailed outcomes, referred to as competencies.

Every learning outcome in the competency areas of both Management Decision Making and Control and Financial Management was classified as level 1 to 6 of the revised Bloom's Taxonomy (1=remember, 2=understand, 3=apply, 4=analyse, 5=evaluate, 6=create). The average Bloom ratings calculated for Management Decision Making and Control and Financial Management are as follows:

Table 11.4: Average Bloom ratings for SAICA outcomes

SAICA		NWU
Management Decision Making and Control	Financial Management	Guideline
4.4	4.0	4.4

Source: Researcher

The average Bloom rating calculated according to the NWU proposed guidelines for cognitive levels is 4.4. The Bloom rating for Management Decision Making and Control is in line with the proposed guideline of 4.4, and that of Financial Management is slightly below.

The results of the distribution between cognitive levels of learning revealed the following:

Table 11.5: Distribution of SAICA learning outcomes for MAF between the cognitive levels of the revised Bloom's Taxonomy

Bloom level	Management Decision Making and Control		Financial Management		MAF	
	% of outcomes	% of outcomes	% of outcomes	% of outcomes	% of outcomes	% of outcomes
1	0.2%	3.4%	0.0%	10.2%	0.1%	6.6%
2	3.2%		10.2%		6.5%	
3	5.5%	5.5%	4.3%	4.3%	5.5%	5.5%
4	26.0%	90.1%	31.7%	85.4%	28.7%	87.9%
5	54.6%		41.1%		48.2%	
6	9.5%		12.6%		11.1%	

Source: Researcher

The percentage of learning outcomes that should be at higher cognitive levels (levels 4 to 6) was proposed to be 80% at CTA level. The results indicated that, for both Management Accounting and Financial Management, the percentage learning outcomes at higher-order cognitive levels was higher than proposed. It is, therefore, concluded that SAICA does expect learners to operate at the higher cognitive levels of learning.

The analysis was taken a step further to investigating the action verbs that SAICA tends to use in the learning outcomes. It was revealed that the following verbs are used most frequently by SAICA:

Table 11.6: SAICA verb frequency for MAF

Bloom level	Management Decision Making and Control	Financial Management	MAF
1	Describe		Describe
2	Describe Distinguish Explain Identify Understand	Be aware of Describe Explain Identify Understand	Be aware of Describe Distinguish Explain Identify Understand
3	Determine Document Exclude Perform Prorate Rank Reconcile Report Solve Use	Calculate Determine Incorporate	Calculate Determine Document Exclude Perform Prorate Rank Reconcile Report Solve Use
4	Analyse Discuss Explain Identify Interpret Investigate	Analyse Determine Differentiate Examine Identify Interpret	Analyse Determine Differentiate Discuss Examine Explain Identify Interpret Investigate
5	Advise Consider Determine Evaluate Explain Recommend Review Suggest	Advise Apply (to make decision) Conclude Estimate Evaluate Monitor Recommend Review Suggest	
6	Design Develop Incorporate Prepare	Develop Forecast Prepare	

Source: Researcher

The column to the right of Table 11. contains all the verbs used by SAICA in the Management Decision Making and Control and Financial Management competency areas. Many of the verbs in Table 11. are used only once. In Table 11. only the verbs that are used five times or more are presented:

Table 11.7: Verbs most frequently used by SAICA for MAF

Bloom level	Management Decision Making and Control	Financial Management	MAF
1			
2		Identify Understand	Identify Understand
3			
4	Analyse Identify	Analyse Identify	Analyse Identify
5	Consider Determine Evaluate Recommend	Evaluate Suggest	Consider Determine Evaluate Recommend Suggest
6		Develop	Develop

Source: Researcher

According to Table 11.7, only 10 verbs were used more than five times by SAICA. The verb “identify” at level 2 (understand) was used six times in Financial Management and once in Management Decision Making and Control. “Identify” was, however, also shown to be at level 4 (analyse), and at this level it was used 10 times in Financial Management and 17 times in Management Decision Making and Control. This makes “identify” the most frequently used verb in these two competency areas of the competency framework. It was interesting to note that the verb “calculate” was not used by SAICA at the application level of the revised Bloom’s Taxonomy in the competency area of Management Decision Making and Control. It was used only twice at the application level in the Financial Management competency area.

The verbs in the right-hand column of Table 11.7 were all used five times or more by SAICA in the learning outcomes of the combined competency areas of Management Accounting Decision Making and Control and Financial Management.

11.2.7.2 Evaluating the cognitive level of the set learning outcomes of universities

In order to evaluate the cognitive level of the set learning outcomes, an analysis of the learning outcomes of Management Accounting and Financial Management modules of six universities at second-year, third-year and CTA level was performed (paragraph 9.3, page

217). In this section of the study, the framework developed for the interpretation of the revised Bloom's Taxonomy (Table 11.3) was used as a tool to investigate the cognitive levels of the learning outcomes of the MAF modules presented at South African universities. The analysis of the learning outcomes involved the calculation of an average Bloom rating for each of the modules, the analysis of the cognitive levels (lower order, intermediate and higher order) and the analysis of the action verbs used in the learning outcomes.

Average Bloom ratings of learning outcomes

Every learning outcome of the Management Accounting and Financial Management modules of the six universities was assigned a value from 1 to 6, representing the six levels of the revised Bloom's Taxonomy (remember, understand, apply, analyse, evaluate and create). The categorisation of the learning outcomes was based on the framework for applying the revised Bloom's Taxonomy in MAF (paragraph 9.2.4, page 212).

The results indicated that, throughout all year levels and for both subjects, the average Bloom ratings were lower than the proposed ratings. This was especially the case for the third year where the average rating for MAF (2.7) was significantly lower than the guideline (3.8). The rating of 2.7 was also lower than the guideline for the second-year level, which is at 3.2. A Bloom rating for third-year modules below 3.0 is alarming.

At CTA level the cognitive level of the learning outcomes for MAF (3.7) was also much lower than the proposed guidelines for fourth-year modules (4.4). Because the learning outcomes in the competency framework refer to the levels of achievement expected of a prospective CA upon entry into the profession, these outcomes can be seen to be at fourth-year (CTA) level. Therefore, the average Bloom ratings were also compared to the average Bloom ratings of the SAICA learning outcomes. For both Management Accounting and Financial Management the average ratings for the universities (3.6 and 3.6 respectively) were lower than the ratings of the SAICA outcomes (4.4 and 4.0 respectively). The average Bloom rating for the SAICA learning outcomes for MAF was calculated to be 4.2. This is close to the proposed guideline of 4.4.

The following possible reasons for the low levels of learning outcomes were identified:

- One of the universities had twice the number of learning outcomes than the other universities had. On closer inspection it was established that the learning outcomes of the second- and third-year levels for that university were included in the CTA learning outcomes. As mentioned previously, learning outcomes of the

second and third year are assumed to already have been mastered when a student reaches CTA level.

- Some of the universities used the learning outcomes in the textbooks as learning outcomes for some of the modules. From the literature review it was established that the cognitive levels of learning outcomes in textbooks focus on the lower cognitive levels of learning. Thus, using textbook outcomes would cause the average Bloom rating of MAF modules to be lower.
- The way in which learning outcomes are formulated could also have an impact on the Bloom ratings of the outcomes. Many of the outcomes that were analysed contained more than one verb. Often one of the verbs was at the lowest cognitive level of learning (remember), while the other verb in the outcome addressed a higher cognitive level. Because the average rating was calculated for each outcome individually, combining a higher-order with a lower-order verb in one outcome would bring down the average rating of the outcome and, therefore, the average rating for the module as a whole.
- Some of the modules contained a significant number of lower-order outcomes, such as explain or describe, for the basic concepts of certain topics. If these basic outcomes were combined, the weight of the lower-order outcomes would be lower and, in turn, the average Bloom rating would be higher.

Cognitive levels of learning outcomes

Following on the calculation of the average Bloom rating of the learning outcomes, the distribution of these outcomes between the different cognitive levels of learning (lower, intermediate and higher) was investigated (paragraph 9.4.2, page 242). The results showed that the majority of the outcomes for second- and third-year MAF modules address the lower and intermediate cognitive levels of learning (remember, understand and apply). At second-year level 70.2% of MAF modules addressed the lower-order outcomes. The percentage of lower- and intermediate-order outcomes was also higher for Financial Management (72.5%) than for Management Accounting (69.3%). This was also the case at third-year level where the percentage of higher-order outcomes of Management Accounting was only 39.0% and that of Financial Management was 35.4%. This is alarming when compared to the guideline of 60% higher-order outcomes at third-year level.

At CTA level the percentage of outcomes at the higher-order cognitive level (analyse, evaluate and create) was higher (75.8% and 71.4% for Management Accounting and Financial Management respectively). This is, however, still below the norm of 80% for fourth-year modules as calculated based on the proposed guidelines.

It was established that there is a shift towards the higher-order cognitive levels of learning as students progress through the years of study, with the greatest shift being from third year to CTA. But, despite the shift, the learning outcomes of MAF modules in CA programmes at South African universities were found to focus on the lower- and intermediate-order cognitive levels of learning. This was especially the case for the third-year MAF modules where the deviation from the proposed guideline was shown to be the greatest.

Action verbs used in learning outcomes

A verb count for both MAF modules revealed that certain verbs are used more frequently than others in these modules (paragraph 9.4.4, page 246). It was also revealed that the same verb could be at different cognitive levels; thus, the verbs were presented per cognitive level (levels 1 to 6 of the revised Bloom's Taxonomy). A summary of the verbs that were used more than ten times in the MAF outcomes is presented below:

Table 11.8: Verbs frequently used in MAF learning outcomes

Bloom level	Verbs used in MAF learning outcomes
1 – Remember	Identify, Define, Describe, Explain
2 – Understand	Describe, Discuss, Distinguish, Explain, Identify, Understand
3 – Apply	Apply, Calculate, Compute, Determine, Perform, Prepare, Reconcile, Use, Value
4 – Analyse	Analyse, Calculate, Compare, Determine, Discuss, Identify, Interpret
5 – Evaluate	Advise, Consider, Determine, Evaluate, Justify, Make decision, Monitor, Motivate, Recommend, Suggest
6 – Create	Develop, Prepare

Source: Researcher

The verb that was used most in the learning outcomes of MAF modules was “discuss” (189 times). Other verbs used frequently were “explain”, “calculate”, “identify” and “evaluate”. “Identify” was used mostly in the context of analysis (level 4 of Bloom's Taxonomy).

The two disciplines of Management Accounting and Financial Management used different verbs at each year level. Although the average Bloom rating for Financial Management seemed to be lower than for Management Accounting, Financial Management seemed to contain more verbs from the higher cognitive levels of the revised Bloom's Taxonomy. As mentioned previously, a definite shift in emphasis was identified from the lower-order to the higher-order cognitive levels as MAF students progress from second to third year and from

third year to CTA level. The data showed an increase in the average Bloom ratings for each year for both the subjects of Management Accounting and Financial Management.

11.2.7.3 *Evaluating the cognitive level of the summative examinations*

As part of addressing the eighth secondary objective (paragraph 1.5.2.8, page 12) the cognitive levels of the questions in the summative examinations of Management Accounting and Financial Management modules at South African universities were evaluated. This was done by calculating an average Bloom rating for each module (paragraph 9.5.1, page 250), analysing the distribution of questions between lower-order, intermediate and higher-order levels of learning (paragraph 9.5.2, page 251), determining the relative distribution of Bloom levels (paragraph 9.5.3, page 255) and analysing the verbs used in the assessment questions (paragraph 9.5.4, page 257).

Average Bloom ratings of assessment questions in summative examination questions

The average Bloom ratings for the summative assessments were calculated in the same way as the average Bloom ratings for the learning outcomes. As with the learning outcomes a value of 1 to 6 was allocated to each question. The average Bloom ratings of the assessment questions for Management Accounting and Financial Management were found to be in line with the guidelines proposed in chapter 9 of this thesis. The average Bloom ratings for Management Accounting at second- and third-year level (3.2 and 3.8 respectively) were exactly in line with the guideline and the CTA level is slightly lower (4.2 as opposed to 4.4). For Financial Management second-year modules the rating was slightly lower than the guideline (3.1 as opposed to 3.2), and at third-year level slightly above (3.9 as opposed to 3.8). The CTA level rating was also slightly below the guideline (4.3 as opposed to 4.4).

It can be concluded that the average Bloom ratings for both Management Accounting and Financial Management at all year levels were in line with the proposed guidelines. This implies that the assessment questions of MAF modules at South African universities were set at the appropriate cognitive levels of the revised Bloom's Taxonomy for each year level.

Cognitive levels of assessment questions

The results indicated that, at second-year level, 12.4% of Management Accounting assessment questions were lower-order questions, while 23.3% of Financial Management questions at second year were lower order. The majority of the questions at second year were at the intermediate level. The higher-order questions were below the proposed guideline of 40% with Management Accounting at 20.7% and Financial Management at 29.9%.

At third-year level, the higher-order questions in Financial Management exceeded the stated norm of 60% with 78.6% of questions being higher-order questions. The higher-order Management Accounting questions were below the norm at 46.9%. MAF as a whole, however, had 64% of questions at the higher cognitive levels.

At CTA level, Management Accounting and Financial Management were in line, and both subjects had more than 92% of the questions at higher-order cognitive levels. This was more than the proposed guideline of 80%.

These results suggest that the cognitive levels required in Management Accounting and Financial Management were very similar in examination questions. Testing pure recall seems to be quite rare at all year levels. It seems that the questions for both Management Accounting and Financial Management at second year were below the proposed guidelines and were at too low cognitive levels. This was, however, corrected in the third year for Financial Management and at CTA level where both subjects exceeded the proposed guidelines.

Action verbs used in assessment questions

The verb count for Management Accounting and Financial Management assessment questions indicated that, as was the case with learning outcomes, certain verbs were used more frequently. The verbs that were used more than five times in the MAF examination questions are as presented in Table 11.9.

Table 11.9: Verbs used frequently in MAF examination questions

Bloom level	Verbs used in MAF examinations questions
1 - Remember	
2 - Understand	Discuss, Explain, Identify
3 - Apply	Calculate, Determine, Prepare
4 - Analyse	Calculate, Discuss, Identify
5 - Evaluate	Advise
6 - Create	

Source: Researcher

“Calculate” at the application level of the revised Bloom’s Taxonomy was the verb that was used most frequently in MAF examination questions. It occurred most frequently at second- and third-year levels for both Management Accounting and Financial Management. At CTA

level “calculate” was also used frequently, but mostly at the analysis level of the revised Bloom’s Taxonomy.

11.2.7.4 Statistical analysis

Statistical analysis was performed to analyse the differences in cognitive levels of the learning outcomes and assessment questions of the MAF modules in CA programmes. This analysis was performed to test for differences between the subjects and the differences between the year levels.

Differences in cognitive levels between subjects

The results of the *t*-test showed no statistically significant differences between the cognitive levels of the learning outcomes of Management Accounting and Financial Management. The same results were found for differences in the cognitive levels of the examination questions between Management Accounting and Financial Management (paragraph 9.6.1, page 261). These results were confirmed by a Mann-Whitney test.

It can, therefore, be concluded that the cognitive levels of the learning outcomes and assessment questions of Management Accounting and Financial Management are not significantly different.

Differences in cognitive levels between year levels

In analysing the differences in the cognitive level between year levels, the *p*-value of the ANOVA test revealed statistically significant differences between the cognitive levels of both learning outcomes ($p = 0.0005$) and assessment questions ($p = <0.0001$) (paragraph 9.6.2, page 264). This was confirmed by a non-parametric Kruskal-Wallis test for the learning outcomes ($p = 0.0020$) and the assessment questions ($p = <0.0001$).

These differences in the cognitive levels for the different years of study were further investigated by performing a multiple comparisons post-hoc test. It was revealed that, for the learning outcomes, the cognitive level for the CTA year was statistically significantly higher than for the second year ($p = 0.0018$). The cognitive levels of the learning outcomes were shown not be significantly different between the second and third years of study. This is in contrast to the literature which requires the cognitive levels of learning to increase between the different years of study.

The tests for the assessment questions revealed that the difference in the cognitive level of the questions for the second year is statistically significantly smaller than that of the third

year or CTA year. The difference between the cognitive levels of questions at third year and CTA year were not shown to be statistically significant.

A continuous upward trend was identified for both the cognitive levels of learning outcomes and assessment questions. Thus, there seems to be a definite move towards the higher cognitive levels of learning as students progress through their years of study.

11.2.8 Critical evaluation of the constructive alignment of educational-level requirements throughout the learning assessment

The ninth secondary objective (paragraph 1.5.2.9, page 12) of this study was to evaluate the constructive alignment of educational-level requirements throughout the entire learning assessment process. This objective was addressed in chapter 10 (page 270) by evaluating the alignment of the summative assessments of the MAF modules in CA programmes at South African universities to the learning outcomes of the modules (paragraph 10.2, page 271) and the alignment of the summative examination questions of the MAF modules of the universities to the outcomes in the SAICA competency framework (paragraph 10.3, page 278).

11.2.8.1 *The alignment of summative assessments to learning outcomes at South African universities*

From the literature review it was evident that the alignment of the summative assessments to the learning outcomes is the basic principle of constructive alignment (paragraph 6.3, page 131). For this reason, it was important to test the alignment of summative examinations in CA programmes at South African universities to the stated learning outcomes. The results showed little alignment between the questions in examinations and the stated learning outcomes of MAF modules (paragraph 10.2, page 271). The analysis involved comparing the average Bloom ratings of the assessment questions and the learning outcomes (paragraph 10.2.1, page 272), comparing the levels of cognitive skills required (paragraph 10.2.2, page 273) and comparing the action verbs used in the examination questions and the learning outcomes (paragraph 10.2.3, page 275).

Comparing average Bloom ratings

The comparison between the average Bloom ratings of the assessment questions and the learning outcomes of MAF modules in CA programmes (paragraph 10.2.1, page 272) indicated that the average Bloom ratings for the assessment questions of Management Accounting and Financial Management at all year levels were much higher than the ratings

for the learning outcomes. This implies that the cognitive levels of the assessment questions were at higher cognitive levels than the learning outcomes.

It was previously reported that the Bloom ratings for the questions in the summative examination questions were appropriate for each year level (paragraph 9.5.1, page 250). Therefore, the misalignment can be ascribed to the fact that the learning outcomes of MAF modules were at too low levels. This is confirmed by the results of the Bloom ratings, namely that the learning outcomes were at levels lower than the proposed levels (paragraph 9.4, page 239).

Higher-order and lower-order cognitive skills

The results of the comparison of the cognitive levels of the examination questions to those of the learning outcomes showed no match for any of the year levels in any one of the two subjects (paragraph 10.2.2, page 273). As identified in the average Bloom ratings, the comparison of the cognitive levels indicated that all learning outcomes were at lower cognitive levels than the examination questions.

Action verbs

In matching the verbs used in the outcomes in the SAICA competency framework, the verbs in the learning outcomes of the universities' MAF modules, and the verbs in the assessment questions in the summative examination questions of the MAF modules, no alignment between the verbs was found. The results showed that SAICA tends to use verbs at the higher cognitive levels of Bloom's Taxonomy (analyse, evaluate and create), while the verbs used by the universities in the learning outcomes were predominantly from the lower levels (understand and apply). This does, however, make sense, as the SAICA outcomes are at CTA level. The verbs frequently used in the universities' assessment questions ranged from level 2 (understand) to level 5 (evaluate) and were not aligned with the verbs used in the learning outcomes.

Statistical analysis

The statistical analysis confirmed the results presented above. A positive relationship between the cognitive levels of the stated learning outcomes of universities and the cognitive levels of the questions in the summative examinations was determined by means of Spearman's rank-order correlation (r -value = 0.45) (paragraph 10.2.4, page 276).

The alignment between the cognitive levels of learning outcomes and assessment questions was further investigated by performing a parametric test (t -test for dependent samples) and a

non-parametric test (Wilcoxon matched-pairs test). The results for both tests indicated that the cognitive level of the assessment questions was significantly higher than that of the learning outcomes for MAF as a whole and for Financial Management for all year groups. Although the *t*-test showed a statistically significant difference between the cognitive levels of learning outcomes and assessment questions of Management Accounting, this result was not confirmed by the Wilcoxon matched-pairs test.

The results of the *t*-test also pointed towards a statistically significant difference between the levels of learning outcomes and assessment questions of both Management Accounting and Financial Management questions at all year levels. The Wilcoxon matched-pairs test, however, indicated a statistical significant difference only between the cognitive levels of learning outcomes and assessment questions at third-year level. This confirms the results reported in paragraph 9.4.1 (page 240) where the low average Bloom rating of the learning outcomes for the third-year level was reported. The mean values confirmed that the average Bloom rating of the assessment questions was higher than that of the learning outcomes for all subjects and in all year groups.

Discussion

In conclusion there seems to be little alignment between the summative examination questions of the universities and the stated learning outcomes at all year levels. The following possible reasons were identified for the examination questions' being at higher cognitive levels than the learning outcomes:

- Universities tend to repeat lower-order outcomes in later years of study. This brings down the average cognitive level of the learning outcomes. This was confirmed by literature indicating that students need the lower levels as building blocks and require repeated exposure to the lower levels of learning.
- South African SAICA-accredited universities' focus on the SAICA competency framework tends to increase the cognitive level of the examinations questions. This is specifically the case at CTA level where the focus was shown to be on the SAICA competency framework.
- Many lecturers do not pay attention to the learning outcomes and are often not aware of the process of developing learning outcomes. Learning outcomes are also not reviewed frequently in many of the MAF modules (paragraph 8.4.3, page 185).

11.2.8.2 *Alignment of summative assessments with the learning outcomes of SAICA*

The final test of alignment in this study involved evaluating the alignment of the summative examination questions with the learning outcomes in the SAICA competency framework (paragraph 10.3, page 278). The evaluation was based on the comparison of the average Bloom ratings of the summative CTA examination questions and the average Bloom ratings of the SAICA outcomes. The results indicated that the questions in the CTA examinations of the universities were more closely aligned with the outcomes in the SAICA competency framework than with the learning outcomes of the university modules. This was confirmed in the analysis of the distribution of the learning outcomes and assessment questions of universities and the SAICA outcomes between the cognitive levels of learning. This was the case for both Management Accounting and Financial Management.

The conclusion can be drawn that South African universities tend to focus more on the SAICA competency framework when setting summative examinations, especially at CTA level, than on the learning outcomes of the university. This also confirms the fact that too little attention is being paid to the development of appropriate learning outcomes for the different year levels.

11.3 CONCLUSION ON THE OVERALL PRIMARY RESEARCH OBJECTIVE

The overall primary research objective that this study aimed to achieve was as follows (paragraph 1.5.1, page 11):

To evaluate the pertinence and alignment of educational-level requirements to learning outcomes and summative assessments in CA programmes at South African universities accredited with SAICA.

This objective was reached by performing a detailed literature review, presented in chapters 3 to 6 (pages 46 to 142), upon which the relevant conclusions were drawn. The next step was to follow a mixed methodology (as explained in chapter 7, page 143) to gain an understanding of the process of module development in CA programmes at South African universities (chapter 8) and the pertinence of educational-level requirements in CA programmes (chapter 9), and to evaluate the alignment of these level requirements to the stated learning outcomes and assessment questions of the universities (chapter 10). The final step was to identify recommendations as set out in this final chapter (chapter 11).

Based on these findings it can be concluded that the role of educational-level requirements in modules within CA programmes at South African universities is often underestimated and

that there is a lack of alignment of the level requirements to the learning outcomes and assessments in these programmes.

The contribution of the thesis with regard to its findings, conclusions and recommendations is presented in paragraph 11.5 (page 318).

11.4 RECOMMENDATIONS

Recommendations are presented with regard to the process of developing modules, the pertinence of educational-level requirements and constructive alignment in CA programmes at South African universities.

11.4.1 Recommendations regarding the process of module development in CA programmes at South African universities

- Educators lecturing in CA programmes need to be better informed regarding the process of module development and what it entails. Lecturers and other educators involved in the different phases of module development should be familiar with the frameworks that inform the elements involved and with the educational-level requirements applicable to each of these elements. Lecturers should be involved in the development of module outcomes, assessment criteria and learning outcomes.
- Module outcomes should be broad statements of the competencies required of the students upon completion of the module. These outcomes should be based on the NQF level descriptors provided by SAQA. Although the NQF level descriptors document is the main informing document for developing these outcomes, the requirements of SAICA should also be taken into account.
- All modules should have a set of assessment criteria which should be derived from the module outcomes. These criteria should be based on the NQF level descriptors and the competency framework of SAICA, and may be influenced by the revised Bloom's Taxonomy. These criteria should be communicated to both educators lecturing the modules and the students enrolled for the module, because they describe the competencies expected of the student at the relevant year level.
- By using the module outcomes and assessment criteria as starting point for the development of learning outcomes, the relevant NQF level descriptors would be implicitly incorporated into the learning outcome.
- Learning outcomes of MAF modules in CA programmes should be based on the detailed outcomes as set out in the Management Decision Making and Control and Financial Management competency areas of the SAICA competency framework.

Attention should, however, be paid to the cognitive level appropriate for the given level of study, for which the revised Bloom's Taxonomy could be used as guidance. The guidance with regard to exposure to the lower-order, intermediate and higher-order cognitive levels as proposed in this study could be followed to ensure the outcomes are at appropriate cognitive levels.

- Assessments should be informed by both the SAICA competency framework and a taxonomy of learning such as the revised Bloom's Taxonomy. As is the case with learning outcomes, applying the revised Bloom's Taxonomy in setting assessment questions would help to ensure that examination questions are at the appropriate cognitive level.
- The institutional policies and guidelines of the university should be taken into account in all the elements of the module development process, i.e. module outcomes, assessment criteria, learning outcomes and assessments.

11.4.2 Recommendations regarding the pertinence of educational-level requirements in CA programmes at South African universities

- More attention should be paid to the development of clearly stated learning outcomes. Learning outcomes define what the learner should be able to do, know or understand upon completion of a module, as well as how the knowledge should be demonstrated. Therefore, learning outcomes have to be formulated explicitly and clearly in order for all the stakeholders to be better informed.
- The action verb is the key element in the learning outcomes; thus, the wording of learning outcomes should be considered carefully. The cognitive levels of learning outcomes and examination questions can be altered by changing the verbs. More attention should be paid to the verbs used in learning outcomes and assessment questions. Action verbs for MAF learning outcomes and assessments can be derived from the framework for interpreting the revised Bloom's Taxonomy for MAF as presented in chapter 9 (Table 9.8, page 213).
- Learning outcomes at all South African universities and at all year levels should be revised in order to ensure that they are at appropriate cognitive levels.
- Where learning outcomes in textbooks are used as learning outcomes for the modules, the cognitive levels need to be scrutinised and the outcomes adapted to the level of study involved.
- It would be a valuable exercise for academic staff to attend study groups or courses on assessment and taxonomies of learning. This would lead to a greater agreement among academics regarding the cognitive level of assessments.

- There should be quality assurance processes in place to ensure that learning outcomes are set appropriately.
- Achieving the correct balance between lower-order and higher-order questions in summative examination papers will contribute towards the effective evaluation of CA students. The proposed guideline for exposure to lower-, intermediate and higher-order cognitive levels presented in this thesis (Table 9.7, page 212) could be used for this purpose.
- Lecturers have to be familiar with the NQF levels in order to develop the module outcomes and learning outcomes at the correct levels for their modules.
- Collaboration among accounting educators to reach a shared understanding of learning standards would lead to the development of valid assessments. Therefore, opportunities for collaboration within and between institutions could help to reach this shared understanding and, ultimately, improve the standard of assessment.
- Accreditation with SAICA is merely an indication of quality and does not necessarily imply that assessments are at the appropriate levels. Careful attention should still be paid to the cognitive levels of assessments at different year levels according to a conceptual framework such as the revised Bloom's Taxonomy.

11.4.3 Recommendations regarding constructive alignment within CA programmes at South African universities

- Alignment between learning outcomes and assessment is the basic principle of constructive alignment. Learning outcomes set the standard for assessments, and the alignment of these outcomes with the assessments enables quality education to be delivered. The alignment between the learning outcomes and the assessment questions in MAF modules in CA programmes needs to be revised and receive more attention.
- Attention should be paid to the stated learning outcomes when preparing assessment questions. Lecturers should be made aware of the importance of the principle of constructive alignment, and procedures should be put into place to ensure that enough attention is paid to alignment.
- The tool provided in this study gives a simple and concrete way to evaluate the cognitive levels of learning outcomes and assessment questions. It is recommended that the tool be used to evaluate not only the cognitive levels of learning outcomes and assessments but, ultimately, the alignment between learning outcomes and assessment questions.
- The results of this study can be used to encourage MAF departments to rethink the alignment within their modules.

11.5 CONTRIBUTION

The researcher is of the opinion that this study could place much-needed focus on the development of learning outcomes and assessment in modules in CA programmes, which would lead to enhanced constructive alignment and, ultimately, increased learning.

This thesis made the following contributions:

- The study established a new framework for the process of module development in CA programmes at South African universities which lecturers in CA programmes can use to develop modules. The framework illustrates the logic flow of module development and identifies the role players in this process. Furthermore, the framework informs the lecturer of the frameworks, policies or taxonomies on which the respective elements and the educational levels in the process should be built. Adherence to this framework would, ultimately, ensure that modules within the CA programmes adhere to the requirements set by the CHE, the professional body, SAICA, and university policies.
- The study provided a description of the process of module development for CA programmes, including the frameworks and level requirements that should influence this process. This description could initiate discussions among academics lecturing in CA programmes about how their programmes can be improved.
- The study presented the first analysis of the cognitive levels of and alignment between learning outcomes and assessments in CA programmes in South Africa.
- The study developed a framework for the interpretation of the revised Bloom's Taxonomy for the discipline of MAF. With a specific focus on the types of questions encountered in MAF examinations the framework provides guidance on how to interpret questions according to the revised Bloom's Taxonomy in terms of the information requirements, the typical requirements regarding technique or method, and the typical verbs in the question. A shared understanding of the application of the revised Bloom's Taxonomy in the MAF discipline would be valuable to lecturers when developing learning outcomes and setting examination questions or moderating examination papers. This would ensure that the appropriate cognitive levels are engaged which, in turn, would lead to an increased level of critical thinking among CA students. Implementing the framework for interpretation of the revised Bloom's Taxonomy in all MAF departments at South African universities could help to create a common language among MAF educators.
- The study could help universities who present CA programmes to self-assess their programmes with regard to the cognitive levels of learning outcomes and assessments and the alignment of learning outcomes to assessments. The alignment of learning outcomes to assessments is the basic principle of constructive alignment that has been shown to improve student learning.

- The recommendation of this study for improved alignment between learning outcomes and assessments would enhance student learning and help to redress the criticisms against accounting education. Another benefit could be to promote a deep learning approach in students instead of focusing on surface learning.
- As the action verbs are seen as the key element in developing learning outcomes, the list of action verbs used in MAF modules in CA programmes at South African universities could prove to be useful to academics involved in developing learning outcomes.
- MAF educators can ensure the appropriate cognitive level of their examination papers by drawing on the verbs provided in the framework for interpreting the revised Bloom's Taxonomy provided in this study. In doing so, they would be able to develop assessment questions that are more closely aligned to the set learning outcomes.
- This thesis could lead to a paradigm shift in the minds of accounting educators in that they have to change from a technical approach, where the focus is often on "calculate", to engaging the higher cognitive levels of analysis, evaluation and creating for the improvement of critical thinking.

11.6 LIMITATIONS

The results of this study were based on a rigorous process, which was, however, not without limitations. The limitations identified and the researcher's attempts to address them are discussed below:

- A lack of generalisability is a limitation of case study research, and especially for research in the context of higher education (Yap *et al.*, 2014:577).
- The use of content analysis poses another limitation.
- The researcher acknowledges the fact that learning outcomes and assessments do not represent the totality of teaching and learning in CA programmes. Teaching activities in modules within CA programmes can engage students in higher-level cognitive skills.
- The analysis and categorisation into the different levels of the revised taxonomy can become subjective as skills become "subject nuanced" (Krathwohl, 2002).
- A certain level of subjectivity could have been involved in the analysis, as the researcher was the only lecturer to analyse the learning outcomes. However, the literature indicated that, where different raters were used to evaluate learning outcomes and assessment questions, there was a great deal of agreement between raters. The classification of the learning outcomes could be subjective depending on the researcher's interpretation of the verbs (Lakshmi, 2013), as well as the researcher's own background of being a lecturer in the subject. A defense against this limitation of subjectivity is the professional experience of the researcher (16 years teaching

experience in the MAF discipline). Subjectivity was also minimised by applying the framework developed in chapter 9 (paragraph 9.2.4, page 212). As an additional measure of certainty, the ambiguous outcomes and questions, or any outcomes and questions where there was doubt as to the appropriate cognitive level, were discussed with both lecturers at senior level in the subject and staff members of NWU Academic Support Services in order to reach agreement on the appropriate classification.

- This study considered summative examination papers only. Some of the learning outcomes might be tested in other forms of assessments such as tests and assignments.
- This study presented a snapshot in time. The examination papers of only one year were used in the analysis. This snapshot does, however, provide a valuable starting point for academics to reflect on the way in which they develop their learning outcomes and assess them.
- The research is limited to only a part of the process of module development, i.e. learning outcomes and assessments.
- The framework developed for the interpretation of the revised Bloom's Taxonomy in the MAF discipline (paragraph 9.2.4, page 212) cannot be seen as an exact science, as no framework will yield the exact same results among raters.
- Assigning a cognitive level to an examination question often depends on the level of information provided to the students (Crowe *et al.*, 2008:370). A question might seem to require higher-order skills, such as analysis, but if the students were presented with an answer to such a question in a classroom situation, the examination question would be at the level of recall. The researcher is not familiar with the classroom instruction of the modules analysed in this study and could, therefore, not make the inference of whether an analysis-type question might have become a lower-level question based on information provided to the students in class.

11.7 AREAS FOR FURTHER RESEARCH

In performing this study several other research opportunities were identified which could further enhance the quality of education in CA programmes at South African universities. These opportunities are as follows:

- The framework for application of the revised Bloom's Taxonomy presented in this study (paragraph 9.2, page 199) was applied only by the researcher in evaluating the cognitive levels of learning outcomes and assessment questions of MAF modules. Further studies could investigate whether more than one lecturer would reach the same conclusion when applying the tool in evaluating the cognitive levels of learning outcomes and assessment questions.

- In this study the cognitive levels of the SAICA outcomes for Management Decision Making and Control and Financial Management were evaluated. Evaluating the alignment of the SAICA examination questions with these outcomes could prove valuable.
- This thesis focused on the discipline of MAF (Management Accounting and Financial Management). Studies could also be conducted for the other disciplines in CA programmes such as financial accounting, taxation and auditing to explore the Bloom characteristics they exhibit. The appropriateness of the tool for applying the revised Bloom's Taxonomy in the MAF discipline could be adapted and presented for each of the other disciplines in CA programmes.
- This study did not address the appropriateness of the module outcomes or assessment criteria of the MAF modules. This can be explored in a future study, as well as the alignment of the module outcomes with the assessment criteria and the learning outcomes. Furthermore, the educational-level requirements of the module outcomes for the MAF modules could be analysed.
- This study did not address the teaching activities. As shown in the study, when the learning outcomes are aligned with the teaching activities and the assessments, students have clear direction of where they are going. Therefore, it would be valuable to evaluate the alignment of learning outcomes, teaching activities and assessments.
- A sample of six universities is small. Further analysis could be done for all SAICA-accredited universities.
- The focus of this study was on the knowledge category of the revised Bloom's Taxonomy. In future studies the two-dimensional matrix could be employed for mapping assessment tasks to both the knowledge and the cognitive process dimension of the revised Bloom's Taxonomy. Other studies might include the affective domains.
- The focus of this study was on CA programmes at South African universities. Further research could expand this study to other professional bodies or to international settings.

11.8 FINAL REMARKS

This study sought to evaluate the pertinence and alignment of educational-level requirements to learning outcomes and summative assessments in CA programmes at South African universities accredited with SAICA. It was found that the documented learning outcomes and examination questions are not aligned and that lecturers pay more attention to the level of the summative assessments than the learning outcomes. This can be ascribed to the fact that summative assessments have to be on the level of SAICA and that lecturers tend to prepare students for passing the professional examination set by SAICA. In turn, the learning

outcomes do not receive the same amount of attention. From the analysis of the alignment it is clear that the cognitive levels of the stated learning outcomes are at too low cognitive levels of learning and have to be revised.

It is imperative that learning outcomes and examination questions be aligned in order to ensure the validity and fairness of assessments. By providing a framework for the interpretation of the revised Bloom's Taxonomy in the MAF discipline, this study will enable academics in accounting education to better formulate learning outcomes and develop valid assessments which would ensure alignment and, ultimately, improve student learning.

Educators need to think more clearly about the design of their modules and the frameworks upon which it should be based. Learning outcomes have to be clearly and specifically stated and aligned to the teaching activities and the assessments. In doing so, students would know exactly what is expected of them. This would not only increase learning and critical thinking, but also help to develop the skilled CAs of the future.

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APPENDIX A:

NQF LEVEL DESCRIPTORS

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GOVERNMENT NOTICE

SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)

No. 586

27 July 2012



In terms of Section 13(1)(g)(ii) of the National Qualifications Framework Act, Act 67 of 2008, SAQA, having reached agreement with the Quality Councils, published for public notice, the Level Descriptors to be used in the development and evaluation of qualifications for registration on the National Qualifications Framework (NQF) on 11 November 2011.

The SAQA Board approved the amendment to section 17 of the initial Level Descriptors to align it with Section 6(3) of the NQF Act, Act 67 of 2008.

The revised Level Descriptors are hereby published to align it with the NQF Act, Act 67 of 2008.

The Level Descriptors are effective from 1st December 2011.

JOE SAMUELS
DEPUTY EXECUTIVE OFFICER

27 JULY 2012



Level Descriptors for the South African National Qualifications Framework

Purpose and philosophical underpinning

1. The purpose of level descriptors for Levels One to Ten of the National Qualifications Framework is to ensure coherence in learning achievement in the allocation of qualifications and part qualifications to particular levels, and to facilitate the assessment of the national and international comparability of qualifications and part qualifications.
2. In order to advance the objectives of the NQF, the South African Qualifications Authority is responsible for the development of the content of the level descriptors for each level of the NQF in agreement with the three Quality Councils: The Council on Higher Education, Umalusi and the Council for Trades and Occupations.
3. The philosophical underpinning of the National Qualifications Framework and the level descriptors is applied competence which is in line with the outcomes-based theoretical framework adopted in the South African context.
4. Ten categories are used in the level descriptors to describe applied competencies across each of the ten levels of the National Qualifications Framework:
 - Scope of knowledge
 - Knowledge literacy
 - Method and procedure
 - Problem solving
 - Ethics and professional practice
 - Accessing, processing and managing information
 - Producing and communicating of information
 - Context and systems
 - Management of learning
 - Accountability

Definitions

5. In these level descriptors any word or expression to which a meaning has been assigned in the National Qualifications Framework Act (Act 67 of 2008) shall have such meaning unless the context indicates otherwise. A basic set of definitions is given below and further definitions and help in the interpretation of particular words or phrases used in the level

descriptors are given in separate guidelines which will be developed by each of the Quality Councils.

6. "Applied competence" has three constituent elements: Foundational competence embraces the intellectual/ academic skills of knowledge together with analysis, synthesis and evaluation, which includes information processing and problem solving; Practical competence includes the concept of operational context; and Reflexive competence incorporates learner autonomy.
7. "Field" means a particular area of learning used as an organising mechanism for the NQF.
8. "Level" means one of the series of levels of learning achievement arranged in ascending order from one to ten according to which the NQF is organised and to which qualification types are pegged.
9. "Level descriptor" means that statement describing learning achievement at a particular level of the NQF that provides a broad indication of the types of learning outcomes and assessment criteria that are appropriate to a qualification at that level.
10. "National Qualifications Framework" is a comprehensive system approved by the Minister for the classification, registration, publication and articulation of quality-assured national qualifications.
11. "Sub-framework" means one of three coordinated qualifications sub-frameworks which make up the NQF as a single integrated system: The Higher Education Qualifications Sub-Framework, the General and Further Education and Training Sub-Framework and the Occupational Qualifications Sub-Framework.

Contextual application of the level descriptors

12. The following principles underpin the application of the level descriptors across the three sub-frameworks of the NQF:
 - There is one common set of level descriptors for the NQF to be used in different contexts
 - The level descriptors incorporate ten competencies
 - The level descriptors are designed to meet the needs of academic as well as occupational qualifications
 - There must be correlation between qualification levels and occupational levels in the world of work
 - The Critical Cross-Field Outcomes of SAQA are embedded in the level descriptors
 - Level descriptors are cumulative i.e. there is progression in the competencies from one level to the next
 - Level descriptors are applicable to the Recognition of Prior Learning (RPL)
 - Level descriptors are descriptive and not prescriptive
 - The nomenclature for qualifications is dealt with in the sub-frameworks of the NQF
13. Level descriptors embrace learning in a wide variety of contexts (vocational, occupational, academic and professional) and environments (classroom, laboratory, field, clinic, community, etc.). Contextual interpretation of the level descriptors within each of the three

sub-frameworks across academic, professional, and occupational contexts is encouraged. In this regard separate guidelines will be developed for each sub-framework.

14. Level descriptors provide a scaffold from which more specific descriptors can be developed by a variety of different sectors and practitioners, for example discipline- or profession-based. It is also recognised that in the processes of curriculum design and development, the interpretation of these generic level descriptors will be influenced by for example, field-, discipline- and context- specific nuances.
15. The nomenclature for qualifications is dealt within the sub-frameworks of the NQF.
16. Level descriptors are designed to act as a guide and a starting point for, *inter alia*:
 - Writing learning outcomes and associated assessment criteria for qualifications and part-qualifications
 - Pegging a qualification at an appropriate level on the NQF used together with purpose statements, outcomes and assessment criteria
 - Assisting learners to gain admission through RPL at an appropriate level on the NQF
 - Making comparisons across qualifications in a variety of fields and disciplines pegged at the same level of the NQF
 - Programme quality management used together with purpose statements, outcomes and assessment criteria
17. Level descriptors provide a broad indication of learning achievements or outcomes that are appropriate to a qualification at that level.
18. The competencies listed at a particular level in the framework broadly describe the learning achieved at that level, but an individual learning programme may not necessarily meet each and every criterion listed.
19. Level descriptors do not describe years of study.
20. In the level descriptors, the accessing, analysing and managing of information and communication in terms of reading, listening and speaking will, where applicable, include Braille and sign language to accommodate learners with special needs. In the case of sign language, listening and speaking refer to receptive and productive language use.

Level descriptors

21. The following level descriptors describe the learning achievement at a particular level of the NQF that provides a broad indication of the learning achievements or outcomes that are appropriate to a qualification at that level.
22. NQF Level One
 - a. *Scope of knowledge*, in respect of which a learner is able to demonstrate a general knowledge of one or more areas or fields of study, in addition to the fundamental areas of study
 - b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an understanding that knowledge in a particular field develops over a period of time

through the efforts of a number of people and often through the synthesis of information from a variety of related sources and fields

- c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to use key common tools and instruments, and a capacity to apply him/herself to a well-defined task under direct supervision
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to recognise and solve problems within a familiar, well-defined context
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to identify and develop own personal values and ethics, and an ability to identify ethics applicable in a specific environment
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to recall, collect and organise given information clearly and accurately, sound listening and speaking (receptive and productive language use), reading and writing skills, and basic numeracy skills including an understanding of symbolic systems
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to report information clearly and accurately in spoken/signed and written form
- h. *Context and systems*, in respect of which a learner is able to demonstrate an understanding of the context within which he/she operates
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to sequence and schedule learning tasks, and an ability to access and use a range of learning resources
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to work as part of a group

23. NQF Level Two

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate a basic operational knowledge of one or more areas or fields of study, in addition to the fundamental areas of study
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an understanding that one's own knowledge of a particular field or system develops through active participation in relevant activities
- c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to use a variety of common tools and instruments, and a capacity to work in a disciplined manner in a well-structured and supervised environment
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to use own knowledge to select and apply known solutions to well-defined routine problems
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to apply personal values and ethics in a specific environment
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate the ability to apply literacy and numeracy skills to a range of different but familiar contexts
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate a basic ability to collect, organise and report information clearly and accurately, and an ability to express an opinion on given information clearly in spoken/signed and written form
- h. *Context and systems*, in respect of which a learner is able to demonstrate an understanding of the environment within which he/she operates in a wider context
- i. *Management of learning*, in respect of which a learner is able to demonstrate a

capacity to learn in a disciplined manner in a well-structured and supervised environment

- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to manage own time effectively, an ability to develop sound working relationships, and an ability to work effectively as part of a group

24. NQF Level Three

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate a basic understanding of the key concepts and knowledge of one or more fields or disciplines, in addition to the fundamental areas of study
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an understanding that knowledge in a field can only be applied if the knowledge as well as its relationship to other relevant information in related fields is understood
- c. *Method and procedure*, in respect of which a learner is able to demonstrate operational literacy, a capacity to operate within clearly defined contexts, and an ability to work within a managed environment
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to use own knowledge to select appropriate procedures to solve problems within given parameters
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to comply with organisational ethics
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate a basic ability to summarise and interpret information relevant to the context from a range of sources, and an ability to take a position on available information, discuss the issues and reach a resolution
- g. *Producing and communicating information*, in respect of which a learner is able to produce a coherent presentation and report, providing explanations for positions taken
- h. *Context and systems*, in respect of which a learner is able to demonstrate an understanding of the organisation or operating environment as a system, and application of skills in measuring the environment using key instruments and equipment
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to learn within a managed environment
- j. *Accountability*, in respect of which a learner is able to demonstrate capacity to actively contribute to team effectiveness

25. NQF Level Four

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate a fundamental knowledge base of the most important areas of one or more fields or disciplines, in addition to the fundamental areas of study and a fundamental understanding of the key terms, rules, concepts, established principles and theories in one or more fields or disciplines
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an understanding that knowledge in one field can be applied to related fields
- c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to apply essential methods, procedures and techniques of the field or discipline to a given familiar context, and an ability to motivate a change using relevant evidence
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to use

own knowledge to solve common problems within a familiar context, and an ability to adjust an application of a common solution within relevant parameters to meet the needs of small changes in the problem or operating context with an understanding of the consequences of related actions

- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to adhere to organisational ethics and a code of conduct, and an ability to understand societal values and ethics
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate a basic ability in gathering relevant information, analysis and evaluation skills, and an ability to apply and carry out actions by interpreting information from text and operational symbols or representations
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to communicate and present information reliably and accurately in written and in oral or signed form
- h. *Context and systems*, in respect of which a learner is able to demonstrate an understanding of the organisation or operating environment as a system within a wider context
- i. *Management of learning*, in respect of which a learner is able to demonstrate a capacity to take responsibility for own learning within a supervised environment, and a capacity to evaluate own performance against given criteria
- j. *Accountability*, in respect of which a learner is able to demonstrate a capacity to take decisions about and responsibility for actions, and a capacity to take the initiative to address any shortcomings found

26. NQF Level Five

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate an informed understanding of the core areas of one or more fields, disciplines or practices, and an informed understanding of the key terms, concepts, facts, general principles, rules and theories of that field, discipline or practice
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an awareness of how knowledge or a knowledge system develops and evolves within the area of study or operation
- c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to select and apply standard methods, procedures or techniques within the field, discipline or practice, and to plan and manage an implementation process within a well-defined, familiar and supported environment
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to identify, evaluate and solve defined, routine and new problems within a familiar context, and to apply solutions based on relevant evidence and procedures or other forms of explanation appropriate to the field, discipline or practice demonstrating an understanding of the consequences
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to take account of, and act in accordance with prescribed organisational and professional ethical codes of conduct, values and practices and to seek guidance on ethical and professional issues where necessary
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to gather information from a range of sources, including oral, written or symbolic texts, to select information appropriate to the task, and to apply basic processes of analysis, synthesis and evaluation on that information

- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to communicate information reliably, accurately and coherently, using conventions appropriate to the context, in written and oral or signed form or in practical demonstration, including an understanding of and respect for conventions around intellectual property, copyright and plagiarism, including the associated legal implications
- h. *Context and systems*, in respect of which a learner is able to demonstrate an ability to operate in a range of familiar and new contexts, demonstrating an understanding of different kinds of systems, their constituent parts and the relationships between these parts, and to understand how actions in one area impact on other areas within the same system
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to: evaluate his or her performance or the performance of others and to take appropriate action where necessary; and take responsibility for his or her learning within a structured learning process and to promote the learning of others
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to account for his or her actions, to work effectively with and respect others, and, in a defined context, to take supervisory responsibility for others and for the responsible use of resources where appropriate

27. NQF Level Six

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate: detailed knowledge of the main areas of one or more fields, disciplines or practices, including an understanding of and an ability to apply the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice to unfamiliar but relevant contexts; and knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate a understanding of different forms of knowledge, schools of thought and forms of explanation within an area of study, operation or practice, and an awareness of knowledge production processes
- c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to evaluate, select and apply appropriate methods, procedures or techniques in processes of investigation or application within a defined context
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to identify, analyse and solve problems in unfamiliar contexts, gathering evidence and applying solutions based on evidence and procedures appropriate to the field, discipline or practice
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an understanding of the ethical implications of decisions and actions, within an organisational or professional context, based on an awareness of the complexity of ethical dilemmas
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to evaluate different sources of information, to select information appropriate to the task, and to apply well-developed processes of analysis, synthesis and evaluation to that information
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to present and communicate complex information reliably and coherently using appropriate academic and professional or occupational conventions, formats and technologies for a given context

- h. *Context and systems*, in respect of which a learner is able to demonstrate an ability to make decisions and act appropriately in familiar and new contexts, demonstrating an understanding of the relationships between systems, and of how actions, ideas or developments in one system impact on other systems
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to evaluate performance against given criteria, and accurately identify and address his or her task-specific learning needs in a given context, and to provide support to the learning needs of others where appropriate
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to work effectively in a team or group, and to take responsibility for his or her decisions and actions and the decisions and actions of others within well-defined contexts, including the responsibility for the use of resources where appropriate

28. NQF Level Seven

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate: integrated knowledge of the central areas of one or more fields, disciplines or practices, including an understanding of and an ability to apply and evaluate the key terms, concepts, facts, principles, rules and theories of that field, discipline or practice; and detailed knowledge of an area or areas of specialisation and how that knowledge relates to other fields, disciplines or practices
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an understanding of knowledge as contested and an ability to evaluate types of knowledge and explanations typical within the area of study or practice
- c. *Method and procedure*, in respect of which a learner is able to demonstrate: an understanding of a range of methods of enquiry in a field, discipline or practice, and their suitability to specific investigations; and an ability to select and apply a range of methods to resolve problems or introduce change within a practice
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to identify, analyse, evaluate, critically reflect on and address complex problems, applying evidence-based solutions and theory-driven arguments
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to take decisions and act ethically and professionally, and the ability to justify those decisions and actions drawing on appropriate ethical values and approaches, within a supported environment
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to develop appropriate processes of information gathering for a given context or use; and an ability to independently validate the sources of information and evaluate and manage the information
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to develop and communicate his or her ideas and opinions in well-formed arguments, using appropriate academic, professional, or occupational discourse
- h. *Context and systems*, in respect of which a learner is able to demonstrate an ability to manage processes in unfamiliar and variable contexts, recognising that problem solving is context- and system-bound, and does not occur in isolation
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to identify, evaluate and address his or her learning needs in a self-directed manner, and to facilitate collaborative learning processes
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to take full responsibility for his or her work, decision-making and use of resources, and

limited accountability for the decisions and actions of others in varied or ill-defined contexts

29. NQF Level Eight

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate: knowledge of and engagement in an area at the forefront of a field, discipline or practice; an understanding of the theories, research methodologies, methods and techniques relevant to the field, discipline or practice; and an understanding of how to apply such knowledge in a particular context
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an ability to interrogate multiple sources of knowledge in an area of specialisation and to evaluate knowledge and processes of knowledge production
- c. *Method and procedure*, in respect of which a learner is able to demonstrate an understanding of the complexities and uncertainties of selecting, applying or transferring appropriate standard procedures, processes or techniques to unfamiliar problems in a specialised field, discipline or practice
- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to use a range of specialised skills to identify, analyse and address complex or abstract problems drawing systematically on the body of knowledge and methods appropriate to a field, discipline or practice
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to identify and address ethical issues based on critical reflection on the suitability of different ethical value systems to specific contexts
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to critically review information gathering, synthesis of data, evaluation and management processes in specialised contexts in order to develop creative responses to problems and issues
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to present and communicate academic, professional or occupational ideas and texts effectively to a range of audiences, offering creative insights, rigorous interpretations and solutions to problems and issues appropriate to the context
- h. *Context and systems*, in respect of which a learner is able to demonstrate an ability to operate effectively within a system, or manage a system based on an understanding of the roles and relationships between elements within the system
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to apply, in a self-critical manner, learning strategies which effectively address his or her professional and ongoing learning needs and the professional and ongoing learning needs of others
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to take full responsibility for his or her work, decision-making and use of resources, and full accountability for the decisions and actions of others where appropriate

30. NQF Level Nine

- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate: specialist knowledge to enable engagement with and critique of current research or practices; and an advanced scholarship or research in a particular field, discipline or practice
- b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an ability to evaluate current processes of knowledge production and to choose an appropriate

- process of enquiry for the area of study or practice
- c. *Method and procedure*, in respect of which a learner is able to demonstrate a command of and ability to design, select and apply appropriate and creative methods, techniques, processes or technologies to complex practical and theoretical problems
 - d. *Problem solving*, in respect of which a learner is able to demonstrate: an ability to use a wide range of specialised skills in identifying, conceptualising, designing and implementing methods of enquiry to address complex and challenging problems within a field, discipline or practice; and an understanding of the consequences of any solutions or insights generated within a specialised context
 - e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to make autonomous ethical decisions which affect knowledge production, or complex organisational or professional issues, an ability to critically contribute to the development of ethical standards in a specific context
 - f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to design and implement a strategy for the processing and management of information, in order to conduct a comprehensive review of leading and current research in an area of specialisation to produce significant insights
 - g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to use the resources of academic and professional or occupational discourses to communicate and defend substantial ideas that are the products of research or development in an area of specialisation; and use a range of advanced and specialised skills and discourses appropriate to a field, discipline or practice, to communicate to a range of audiences with different levels of knowledge or expertise
 - h. *Context and systems*, in respect of which a learner is able to demonstrate an ability to make interventions at an appropriate level within a system, based on an understanding of hierarchical relations within the system, and the ability to address the intended and unintended consequences of interventions
 - i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to develop his or her own learning strategies which sustain independent learning and academic or professional development, and can interact effectively within the learning or professional group as a means of enhancing learning
 - j. *Accountability*, in respect of which a learner is able to demonstrate an ability to operate independently and take full responsibility for his or her own work, and, where appropriate, to account for leading and initiating processes and implementing systems, ensuring good resource management and governance practices
31. NQF Level Ten
- a. *Scope of knowledge*, in respect of which a learner is able to demonstrate: expertise and critical knowledge in an area at the forefront of the field, discipline or practice; and the ability to conceptualise new research initiatives, and create new knowledge or practice
 - b. *Knowledge literacy*, in respect of which a learner is able to demonstrate an ability to contribute to scholarly debates around theories of knowledge and processes of knowledge production in an area of study or practice
 - c. *Method and procedure*, in respect of which a learner is able to demonstrate an ability to develop new methods, techniques, processes, systems or technologies in original, creative and innovative ways appropriate to specialised and complex contexts

- d. *Problem solving*, in respect of which a learner is able to demonstrate an ability to apply specialist knowledge and theory in critically reflexive, creative and novel ways to address complex practical and theoretical problems
- e. *Ethics and professional practice*, in respect of which a learner is able to demonstrate an ability to identify, address and manage emerging ethical issues, and to advance processes of ethical decision-making, including monitoring and evaluation of the consequences of these decisions where appropriate
- f. *Accessing, processing and managing information*, in respect of which a learner is able to demonstrate an ability to make independent judgements about managing incomplete or inconsistent information or data in an iterative process of analysis and synthesis, for the development of significant original insights into new complex and abstract ideas, information or issues
- g. *Producing and communicating information*, in respect of which a learner is able to demonstrate an ability to produce substantial, independent, in-depth and publishable work which meets international standards, is considered to be new or innovative by peers, and makes a significant contribution to the discipline, field, or practice; and an ability to develop a communication strategy to disseminate and defend research, strategic and policy initiatives and their implementation to specialist and non-specialist audiences using the full resources of an academic and professional or occupational discourse
- h. *Context and systems*, in respect of which a learner is able to demonstrate: an understanding of theoretical underpinnings in the management of complex systems to achieve systemic change; and an ability to independently design, sustain and manage change within a system or systems
- i. *Management of learning*, in respect of which a learner is able to demonstrate an ability to demonstrate intellectual independence, research leadership and management of research and research development in a discipline, field or practice
- j. *Accountability*, in respect of which a learner is able to demonstrate an ability to operate independently and take full responsibility for his or her work, and where appropriate to lead, oversee and be held ultimately accountable for the overall governance of processes and systems

Review period

32. The level descriptors will be reviewed at least every five years by SAQA in consultation with the three Quality Councils.

Short title

33. This document must be referred to as the Level Descriptors for the National Qualifications Framework.
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APPENDIX B:

THE COGNITIVE PROCESS DIMENSION

The cognitive process dimension

Categories & cognitive processes		Alternative names	Definitions and examples
1.	Remember – Retrieve relevant knowledge from long-term memory		
1.1	Recognising	Identifying	Locating knowledge in long-term memory that is consistent with presented material (e.g. recognise the dates of important events in U.S. history)
1.2	Recalling	Retrieving	Retrieving relevant knowledge from long-term memory (e.g. recall dates of important events in U.S. history)
2.	Understand – Construct meaning from instructional messages, including oral, written, and graphic communication		
2.1	Interpreting	Clarifying Paraphrasing Representing Translating	Changing from one form of representation (e.g. numerical) to another (e.g. verbal) (e.g. paraphrase important speeches and documents)
2.2	Exemplifying	Illustrating Instantiating	Finding a specific example or illustration of a concept or principle (e.g. give examples of various artistic painting styles)
2.3	Classifying	Categorising Subsuming	Determining that something belongs to a category (e.g. classify observed or described cases of mental disorders)
2.4	Summarising	Abstracting Generalising	Abstracting a general theme or major point (e.g. write a short summary of the event portrayed on a video tape)
2.5	Inferring	Concluding Extrapolating Interpolating Predicting	Drawing a logical conclusion from presented information (e.g. in learning a foreign language, infer grammatical principles from examples)
2.6	Comparing	Contrasting Mapping	Detecting correspondences between two ideas, objects and the like (e.g. compare historical events)

2.7	Explaining	Matching Constructing models	to contemporary situations) Constructing a cause-and-effect model of a system (e.g. explain the causes of important 18 th century events in France)
3.	Apply – Carry out or use a procedure in a given situation		
3.1	Executing	Carrying out	Applying a procedure to a familiar task (e.g. divide one whole number by another whole number, both with multiple digits)
3.2	Implementing	Using	Applying a procedure to an unfamiliar task (e.g. use Newton's Second Law in situations in which it is appropriate)
4.	Analyse – Break material into its constituent parts and determine how the parts relate to one another and to an overall structure or purpose		
4.1	Differentiating	Discriminating Distinguishing Focusing Selecting	Distinguishing relevant from irrelevant part or important from unimportant parts of presented material (e.g. distinguish between relevant and irrelevant numbers in a mathematical word problem)
4.2	Organising	Finding Coherence Integrating Outlining Parsing Structuring	Determining how events fit or function within a structure (e.g. structure evidence in a historical description into evidence for and against a particular historical explanation)
4.3	Attributing	Deconstructing	Determine a point of view, bias, values, or intent underlying presented material (e.g. determine the point of view of the author of an essay in terms of his or her political perspective)
5.	Evaluate – Make judgements based on criteria and standards		
5.1	Checking	Coordinating Detecting Monitoring Testing	Detecting inconsistencies or fallacies within a process or product; determining whether a process or product has internal consistency; detecting the effectiveness of a procedure as it is being implemented (e.g. determine if a scientist's conclusions follow from observed data)
5.2	Critiquing	Judging	Detecting inconsistencies between a product and external criteria, determining whether a product has external consistency; detecting the appropriateness

			of a procedure for a given problem (e.g. judge which of two methods is the best way to solve a given problem)
6.	Create – Put elements together to form a coherent or functional whole; reorganise elements into a new pattern or structure		
6.1	Generating	Hypothesising	Coming up with alternative hypotheses based on criteria (e.g. generate hypotheses to account for an observed phenomenon)
6.2	Planning	Designing	Devising a procedure for accomplishing some task (e.g. plan a research paper on a given historical topic)
6.3	Producing	Constructing	Inventing a product (e.g. build habitats for a specific purpose)

Source: Anderson *et al.* (2001)

APPENDIX C:

LETTER OF REQUEST



NORTH-WEST UNIVERSITY
YUNIBESITHI YA BOKONE-BOPHIRIMA
NOORDWES-UNIVERSITEIT
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Head of Department

School of Accounting Sciences
Tel: 018 299 1458
Fax: 018 299 1426
Email: surika.vanrooyen@nwu.ac.za

5 March 2014

Dear HOD

Request to partake in research project

You are invited to partake in an academic research study in fulfilment of the requirements of a PhD in Accountancy with a focus on Accounting Education. The research title is as follows: "Assessment practices for the accounting profession at South African universities: A critical review".

A key objective of the study is to match module outcomes of the South African universities accredited with SAICA with that of SAICA and SAQA regarding the application of appropriate learning taxonomies and to critically evaluate the matching of framework objectives to assessments by assessing whether the summative assessments at second, third and honours level at the chosen universities assess the set learning outcomes and on the correct levels, according to the SAQA level descriptors as well as other known taxonomies.

As part of this study, I would require the learning outcomes and final examination papers of Financial Management and Management Accounting of the second year, third year and honours levels, of all accounting programmes offered, of each of the universities accredited with SAICA. I hereby kindly request your permission to send a request to the academic staff in your department/school to request these documents.

The following should be noted:

The information and documentation provided by the universities will remain **completely anonymous** and the examination papers will not be distributed or used in any way other than for the purposes of this study. I am prepared to sign a confidentiality agreement with each entity.

The findings will be used for academic purposes. The findings of the research will be made available to the universities upon request. I hope you will consider this request favourably.

Any queries can be directed to me, Surika van Rooyen, at surika.vanrooyen@nwu.ac.za or 0835568530 or to Prof Susan Visser, the promoter of this study, at susan.visser@nwu.ac.za.

Yours sincerely

Surika van Rooyen
Associate professor

Original details: Surika van Rooyen(10217029) C:\Users\10217029\Documents\PHD\Request to partake in research project.docm
19 February 2014

APPENDIX D:

INTERVIEW QUESTIONS TO ACADEMIC STAFF MEMBERS

LECTURING MAF MODULES AT SOUTH AFRICAN UNIVERSITIES

General

1. How many years teaching experience do you have?
2. At what year level do you teach?
3. Which modules do you teach?

Awareness of educational frameworks

4. Are you aware of the SAQA level descriptors?
(*Explain: SAQA provides ten levels of learning with level descriptors for each level.*)
5. What framework(s) is your curriculum based on – HEQF requirements (SAQA) or SAICA's competency framework?
6. Are you familiar with the cognitive levels of learning of Bloom's Taxonomy?

Module outcomes

7. Does your module(s) have broad module outcomes as well as more detailed learning outcomes per topic?
8. On what framework (SAQA, SAICA, university policies or Bloom's Taxonomy) are your module outcomes based on?
9. Have you given any thought or attention to the alignment of module outcomes (broad outcomes) to the SAQA NQF-level descriptors? Do you believe that they are aligned?

Assessment criteria

10. Do you make use of assessment criteria? What is your understanding of assessment criteria? How do they differ from learning outcomes?

Learning outcomes

11. What framework guides you most in determining your learning outcomes (SAICA/ SAQA/ Taxonomy of learning/ Institutional policy of your university)?
12. Do you use the SAQA NQF-level descriptors in developing your learning outcomes?
13. How were the learning outcomes of your module developed (Process and responsible person)?
14. How frequently do you review the learning outcomes of the module that you lecture?

Assessments

15. What framework guides you most in developing your assessments? (SAICA/ SAQA/ Taxonomy of learning/ Institutional policy of your university)
16. Do you use the SAQA NQF-level descriptors in developing your assessments?
17. Do you ever use Bloom's Taxonomy in developing assessments?
18. Do you consider cognitive levels of learning (higher and lower order) when developing assessments or learning outcomes?
19. Do you believe that your summative examination papers have a balance between lower order and higher order questions?
20. Does your institution have specific guidelines regarding the balance between lower order and higher order questions?
21. Do you pay attention to the action verbs in the learning outcomes and assessments?

Alignment

22. Do you ever consult the learning outcomes when you prepare assessments?
23. Do you consider the alignment of assessments to learning outcomes when preparing assessments?

General/collaboration

24. Do you ever collaborate with colleagues or academic support services or others regarding the learning outcomes or module outcomes of your module?

APPENDIX E: PROOF OF LANGUAGE EDITING



TAALPRAKTIJSYN | LANGUAGE PRACTITIONER

PROOF OF LANGUAGE EDITING

8 December 2016

I, Elmarie Viljoen-Massyn, hereby certify that I have language edited the attached thesis titled, *Pertinence and alignment of educational level requirements in assessment: The case of chartered accountancy programmes in South Africa*, by Surika van Rooyen.

I am a language practitioner registered at the South African Translators' Institute (member number 1001757) and my highest qualification is an MA Language Practice.

Please contact me should there be any queries.

Elmarie Viljoen-Massyn

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