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DEPARTMENT OF FINANCE AND TAXATION

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“An exploratory investigation of the approaches to learning of accounting students studying toward a professionally accredited post-graduate programme at the University of Cape Town”

RESEARCH DISSERTATION PRESENTED FOR THE APPROVAL OF THE UNIVERSITY OF CAPE TOWN SENATE IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF COMMERCE SPECIALISING IN FINANCE (IN THE FIELD OF FINANCIAL MANAGEMENT).

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Abstract

Aim:

Increased emphasis by professional bodies on fostering life-long learning has resulted in interest in student approaches to learning. The aim of this paper is to provide a preliminary investigation into the approaches to learning of accounting students in the context of a South African university by sampling students studying a professionally accredited post-graduate programme. A further aim is to investigate the potential differences in these approaches to learning between each of the four core subjects of this post-graduate programme, as well as differences between male and female students, and students achieving differing academic grades. The intention is to serve as a basis for further research within this context as well as provide insights for accounting educators into both student approaches to learning, and links to the learning environment.

Methodology:

The Approaches to Study Skills Inventory for Students (ASSIST) was administered to a group of volunteer students all studying the Post-Graduate Diploma in Accounting (PGDA) at the University of Cape Town (UCT). The applicability of the ASSIST survey was tested via confirmatory factor analysis and thereafter the data was analysed to measure the general tendencies of students to favour either a Deep, Surface or Strategic approach to learning.

Results:

The findings of this study indicate the ASSIST survey is applicable within the context administered although inconsistencies in student responses for one of the four subjects warrants further research. In analysing the data, UCT PGDA students were found to favour a Strategic approach to study, which could be partially attributed to intensive workloads as well as pressure to pass final examinations – passing these exams would grant them eligibility to sit the first of two professional examinations. Generally, no statistically significant differences between student approaches to learning for each of the four core subjects could be observed, nor between student approaches to learning for each gender. However, academically stronger students were found to have less fear of failure; a greater achieving tendency, as well as feeling more comfortable in managing their time.

Conclusion:

The use of the ASSIST survey in this context is acceptable and initial indications suggest that UCT PGDA students feel discouraged from using a surface approach to learning – a step toward fostering competence in life-long learning.

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PLAGIARISM DECLARATION

Presented to the
Department of Finance & Taxation
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by

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COURSE NAME: Mini Dissertation in Financial Management

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Chapter 1: Introduction

The International Federation of Accountants (IFAC) has developed a set of International Education Standards (IES) to prescribe knowledge content, professional skills, values, ethics, attitudes and professional experience that candidates require to qualify as a professional accountant (IES Board, IFAC, 2009). Life-long learning is seen as “critical to meet the needs of the users of professional service” (Introduction to International Education Standards, IFAC, 2009, p. 42). The South African Institute of Chartered Accountants (SAICA) is responsible for establishing and maintaining the minimum qualifications and quality standards of the professional qualification of Chartered Accountant (South Africa). As a member of IFAC, SAICA has developed a new competency-based framework for SAICA members and prospective members. The Competency Framework (SAICA, 2010) largely clarifies the skills and competencies that a member of SAICA should exhibit and reflects the skills and competencies presented by IFAC in the IES’s. Included in the SAICA Competency Framework is specific mention of a member’s ability to foster life-long learning (SAICA Competency Framework, 2010, p. 5).

SAICA has delegated the role of educating prospective South African Chartered Accountants to academic institutions nationally (SAICA Competency Framework, 2010, p. 6). To this end, SAICA accredits a number of degrees and post-graduate qualifications that achieve the correct standard and level of quality. The University of Cape Town (UCT) maintains two accredited undergraduate programmes for students wishing to qualify for SAICA membership. A student can complete a Bachelor of Commerce, majoring in Accounting, or a Bachelor of Business Science, majoring in Accounting and Finance. Having graduated with such a qualification, a student will culminate their university education with the accredited Post-Graduate Diploma in Accounting (PGDA) – or equivalent Certificate in the Theory of Accountancy (CTA) at another South African university. A student having successfully completed a PGDA or equivalent CTA is eligible to write the first of two professional examinations prior to obtaining professional membership of SAICA (SAICA Competency Framework, 2010, p. 6).

Due to the inherent risk of information obsolescence over time, it is important for students to be able to assimilate new information over time. IFAC describes life-long learning as potentially consisting of “an understanding of the flow of ideas and events” and “an ability to conduct inquiry, carry out logical thinking and understand critical thinking” amongst other things (IES3, IFAC, 2009, p. 63). Specifically, IFAC discourages the use of a surface approach to learning as this “is not in the long-term interests of prospective professional accountants and the profession” (IES2, IFAC, 2009, p. 51).

1.1. The approaches to learning literature and support of contextual learning

Marton and Säljö (1976a, 1976b) were amongst the first to research the manner in which students approached specific tasks and the effects thereof on future recall. This research laid the foundations for education research into approaches to learning. Marton and Säljö (1976a, 1976b) defined students who attempted to engage with a task to achieve an understanding of the material as following a 'deep' approach. Those that attempted to memorise facts without relational understanding of the material were defined as following a 'surface' approach. They also found that recall of information at a later date was better amongst those students following a 'deep' approach.

The work of Marton and Säljö (1976a, 1976b) described a task-specific approach to learning and found that either approach could be induced based on the nature and content of assessment requirements over time. This established that students can adopt a specific approach in response to a specific context. Both Biggs (1987) and Entwistle and Ramsden (1983) furthered the approaches to learning literature through the development of self-reported inventories – surveys used to measure student approaches to learning. The assumptions underlying these inventories include the stability of student motive and strategies that influence the process by which a student chooses to learn (Biggs, 1979). This allowed Biggs (1987) and Entwistle and Ramsden (1983) to group students according to a predominant approach – the approach to which they will revert in the absence of influence. Both Biggs (1987) and Entwistle and Ramsden (1983) added a third dominant approach to become known as 'Achieving' or 'Strategic'. The Achieving or Strategic approach is found to be adopted by students actively attempting to maximise their course mark. Students exhibiting a strong Strategic approach are believed to adopt a mix of Deep and Surface approaches depending on the students' perceptions of which approach is best suited to maximise marks given the context.

Self-reported inventories allowed both Biggs (1987) and Entwistle and Ramsden (1983) to capture a large number of responses in a time-effective manner. These inventories were designed, based on the results of phenomenographic research (predominantly interviews), to evaluate the approaches to learning of large groups of students based on responses to a number of statements. These statements are designed to describe certain traits believed to be linked to either a Deep, Strategic or Surface approach. Students respond to each of these statements on a 5-point Likert scale. The use of statistical techniques such as confirmatory factor analysis allows testing of each statement of an inventory in order to eliminate non-value-adding statements or traits and retain those that best described the attributes of a Deep, Strategic and Surface approaches to learning. Responses to the

final surveys are captured and collated to provide some indication as to the strength with which students tend to favour specific approaches to learning.

However, these dominant approaches by which Biggs (1987) and Entwistle and Ramsden (1983) group students can change over time through the interaction of the students own internal factors – for example motivation (Biggs, 1979, 1987, 1999; Kember, Biggs & Leung, 2004; Biggs, Kember & Leung, 2001) and past experience (Davidson, 2002; Duff, 2004; Diseth, Pallesen, Brunborg & Larsen, 2009) – with the learning environment – for example teaching material and assessment (English, Lockett & Mladenovic, 2004; Ramburuth & Mladenovic, 2004; Davidson, 2002; Diseth, 2009; Flood & Wilson, 2008; Marton & Säljö 1976a, 1976b). This interaction, described by Biggs (1987, 1999) as the 3-P model, does not necessarily directly support the notion of contextual learning – at least not to the extent of differing between concurrently registered courses. However, if one assumes that each subject making up a degree could exhibit differing learning environmental factors, such approaches to learning may in fact differ between concurrently registered courses.

Of course, while the use of the ‘approaches to learning’ construct in higher education is both convenient and a well-defined construct within which different groups of students can be analysed, Haggis (2003) argues that such constructs may in fact have become outdated given changes in higher education over time. She argues that such constructs may not fully account for context-specific situations in which students may find themselves that may influence their learning behaviours. While this argument stands, this research serves as a preliminary investigation into the learning behaviours of UCT PGDA students to serve as a basis for further research in this context.

1.2 The context of this study

The UCT PGDA is considered to be the flagship programme of the College of Accounting, a department within the Commerce Faculty at the University of Cape Town. Between 280 and 300 students graduate each year, progressing to write the Part 1 Qualifying Examination for the South African Institute of Chartered Accountants (SAICA). The profession of Chartered Accountancy in South Africa is a profession that continues to adapt with the changing needs of business as is consistent with other professional bodies internationally (Jackling & De Lange, 2009). Many SAICA members act in pivotal management and directorial roles spanning industries such as manufacture, mining, retail, public sector and financial services amongst others. While the context of this study is focussed on examining learning behaviours of students studying a first-world programme in a traditionally ‘developing’ country, this research may have far wider repercussions for other programmes preparing students for life-long learning.

As a professionally accredited accounting programme, the UCT PGDA academic staff endeavours to ensure the curriculum promotes the necessary competencies and pervasive skills of the student body (SAICA Competency Framework, 2010) including the fostering of life-long learning. The UCT PGDA consists of four core subjects: Financial Reporting, Managerial Accounting and Finance, Taxation and Corporate Governance. Anecdotal evidence from informal discussions between lecturing staff and PGDA students indicates potential differences in the learning behaviours of students between each of these four core subjects. These differences include, but are not necessarily limited to, the best method of study that should be adopted to pass each of these subjects. Such potential differences become of concern to lecturing staff given the SAICA-accreditation and the need to foster life-long learning.

The student body studying the PGDA at UCT is diverse in terms of gender, race, culture, nationality, quality of schooling and degree programme. Entwistle, Tait and McCune (2000) sampled a group of South African students from a 'historically disadvantaged' university when testing the pattern of responses for the Approaches to Study Skills Inventory for Students (ASSIST, 1997). This context was described as being "a totally different culture and educational context" (Entwistle, Tait & McCune, 2000, p. 37). Entwistle *et al.* (2000) concluded that for the South African sample, 'Relating Ideas' and 'Achievement' played less defining roles in the Deep and Strategic factors respectively than in their Scottish sample. Furthermore, 'Fear of Failure' appeared to be related to both Surface and Deep factors in their South African sample. The University of Cape Town may be subject to similar 'historically disadvantaged' influences, however, the accounting-specific context and the maturity of the students sampled may negate such disparities.

The development of approaches to learning inventories has led to their application in a variety of contexts including psychology (Marton & Säljö, 1976a, 1976b; Diseth *et al.* 2009; Diseth 2001, 2007), science (Prosser & Trigwell 1991), health science (Leung & Kember, 2010) and accounting (Byrne & Flood, 2004; Flood & Wilson, 2008; Byrne Flood & Willis, 2004; Hall Ramsay & Raven, 2004 and others). The majority of studies into approaches to learning in an accounting context have confirmed the applicability of inventory-based research. While the use of phenomenographic research provides greater depth, the implementation of a survey allows application to a larger number of candidates and provides initial information with which to inform future research. Lucas & Mladenovic (2004) argue, as Biggs (1979) had argued previously, that there is value in both forms of research. However, the use of inventory-based research can allow for confirmation of variation (or the lack thereof) in a population.

Included in the approaches to learning literature is an Irish study by Flood and Wilson (2008) to which this study has the greatest similarity. This prior study investigated the approaches to learning of students preparing to write their final professional exam for entrance into the profession of chartered accountancy in Ireland. Furthermore, differences in the approaches to learning between gender as well as between successful and unsuccessful candidates was undertaken.

Prior research into approaches to learning in an accounting context has yielded an array of conflicting results. Byrne and Flood (2004) found students viewed accounting content as reproductive in nature resulting in students tending toward adopting a Surface approach to learning. However, Flood and Wilson (2008) found the Strategic approach to be adopted by respondents to their survey. Given this conflict and the specific need to discourage surface learning (IFAC, 2009), it becomes important to identify the predominant approach of PGDA accounting students at UCT. Such information could assist accounting educators in assessing whether factors within the learning environment may be influencing student approaches to learning as well as lay the foundation for further research within this context.

The UCT PGDA class of 2009 was approached to participate voluntarily in the completion of the Approaches to Study Skills Inventory for Students (ASSIST) survey (ASSIST, 1997; Entwistle Tait & McCune, 2000) – a revised version of the survey initially developed by Entwistle and Ramsden (1983). The use of the ASSIST is consistent with the Irish study by Flood and Wilson (2008). Due to the similarities in methodology as well as similarities in the cohort of students – both groups are at or close to the point of entry to the profession of chartered accountancy, albeit in different countries – the Flood and Wilson (2008) study serves as a useful basis for comparison of results.

1.3 Research questions and structure of this paper

Given that approaches to learning, as a dynamic concept, can differ depending on context and assessment demands, as well as the requirement of preparing students for life-long learning, the following questions become relevant:

1. Are students studying toward a Post-Graduate Diploma in Accounting at the University of Cape Town dissuaded from the use of a surface approach to learning as indicated in their responses to the ASSIST questionnaire:
 - a. With regards to Financial Reporting?
 - b. With regards to Managerial Accounting and Finance?
 - c. With regards to Taxation?
 - d. With regards to Corporate Governance?

2. Are the approaches to learning tendencies of the students consistent across the four core subjects within the PGDA, or are there contextual differences?
3. Do the approaches to learning tendencies exhibited by students differ depending on the academic achievement based on self-reported mark category for each of the four core subjects of the PGDA?
4. Do male and female students differ in their approaches to learning tendencies for each of the four core subjects of the PGDA?

A review of the literature is followed by a discussion of the chosen research methodology and limitations thereof. Thereafter, the research findings are discussed followed by a brief conclusion including areas for further research.

1.4 Proposed contribution to the literature

This research paper seeks to gain some initial insight into the approaches to learning of students under tuition in an environment that should discourage surface learning across all subjects within the discipline given the professional accreditation and the professional environment toward which students are being trained. This will add to existing accounting education research and confirm or refute similarities of results within other contexts.

With such insights, further research can be designed and undertaken to more accurately determine student approaches to learning and the interaction thereof with the learning environment at UCT. Such further research could assist in the design of course material, lectures, workshops and other interventions that form part of the learning environment that are factors within the control of the educators.

Chapter 2: Literature Review

2.1 Development of student approaches to learning

Marton & Säljö (1976a, 1976b) were amongst the first published researchers to define approaches to learning as either 'deep' or 'surface'. The main focus of their research was to identify the processes and strategies that students undertook to learn and how these processes may influence the outcome of understanding and recall of information. Marton & Säljö (1976a) defined deep-level processing as being "directed toward comprehending" (Marton & Säljö 1976a, p. 8) while surface-level processing as having "a reproductive 'conception' of learning" meaning to be "forced to keep to a rote-learning strategy" (Marton & Säljö 1976a, p. 7). These 'processes' have become more commonly known as approaches to learning in education literature.

The work of Marton and Säljö (1976a, 1976b) aimed at identifying approaches to learning at a task-specific level. Their research focussed on attempting to induce a specific approach to learning strategy and measuring such strategies against desired learning outcomes for specified tasks. Marton and Säljö (1976a, 1976b) used interviews as a medium to identify the processes by which students approached a reading task. They went further to investigate whether a student will adapt their approach to learning based on their conception of assessment requirements. Results indicated that students do indeed adapt their approach depending on the anticipated assessment requirements, based on past experience. Where prior assessments had been designed to induce a recall of factual information with no express need for inherent understanding of the material, students adopted a surface approach thereafter. Where assessments had been administered to induce expression of understanding, students adopted a deep approach thereafter. While Marton and Säljö (1976a, 1976b) did not go as far as to introduce a third process or approach, hints at a possible third approach were made based on the arguments of Miller & Parlett (1974 as cited by Marton & Säljö (1976a)) that a 'cue-seeking' student who is more aware of assessment requirements may indeed be more successful.

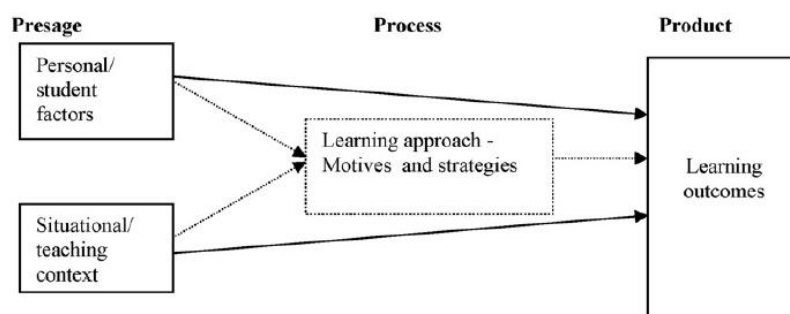
However, the education literature moved swiftly into the development of self-reported inventories (Biggs, 1979, 1987; Entwistle & Ramsden, 1983) to assist in the measurement student approaches to learning in a more holistic sense – investigating the most commonly used or predisposed manner in which students approach learning. While Marton and Säljö (1976a, 1976b) showed that students adopt differing approaches to learning based on their conceptions of learning at a task-specific level, Biggs (1979, 1987) justified the development and use of self-reported inventories through the assumption that students in tertiary education should have, by that stage, developed fairly stable motives for learning and therefore stable strategies for going about learning. These ideas of motive

and strategy were used to assist in the development of the Study Process Questionnaire (SPQ) (Biggs 1978 as cited in Biggs 1979). Entwistle and Ramsden (1983) relied on similar student and educational psychology factors to develop the Approaches to Study Inventory (ASI).

The development of the above inventories highlighted a third dominant approach. This was to become known as the “Strategic” (Entwistle & Ramsden, 1983) or “Achieving” (Biggs, 1979, 1987) approach. This approach is characterised by students’ will to achieve a certain course grade and therefore they would adopt whichever approach best achieved their goal. Delving deeper into Biggs’ (1979, 1987) theory of motivation and strategy, we can gain clarity on what may drive a student to adopt one approach over another. Biggs, Kember and Leung (2001) identify three key motives: keeping out of trouble with minimal effort (associated with a fear of failure); engaging with a task appropriately (associated with intrinsic interest); and to maximise grades (associated with achievement). These motives were each linked with a congruent strategy: selective memorising (or surface learning); seeking meaning (or deep learning); and optimal time and space management (or strategic learning) (Biggs Kember & Leung, 2001).

The Biggs 3P model (Presage-Process-Product – refer Figure 1 below) outlines a dynamic system in which an interaction exists between student factors and teaching context (Presage), on-task approaches to learning (Process) and learning outcomes (Product) (Biggs, Kember, Leung, 2001). Therefore student factors, such as prior learning and achievement (Davidson, 2002; Duff, 2004; Diseth *et al.* 2009), interact with the teaching environment (Davidson, 2002) and student perceptions thereof (Diseth, 2007), including assessment (Marton & Säljö, 1976a, 1976b) and teaching, to determine the approach to learning adopted by the student in that context. This approach to learning in turn will influence the learning outcomes and achievement (English *et al.* 2004; Ramburuth & Mladenovic, 2004; Davidson, 2002; Diseth *et al.* 2009). However, the learning outcomes and the approaches to learning adopted will in turn influence both the way in which the teacher develops assessment and teaching material as well as the manner in which a student tends to approach learning (Biggs Kember & Leung 2001).

Figure 2.1.1: The Biggs Presage-Process-Product Model



The importance of student approaches to learning is highlighted when considered in the light of constructive alignment (Biggs, 1996, 1999). Intuitively, the need for students to practice a 'deep' approach to learning makes sense. A student leaving tertiary education should be adequately prepared to work in the field toward which they studied and have the ability to practice life-long learning (IFAC, 2009; Biggs Kember & Leung, 2001). Therefore, adequate preparation should be the driving force of educational objectives. However, those learning outcomes will only be achieved if there is constructive alignment (Biggs, 1996) between educational objectives, the manner in which content is taught, the assessments that are used to measure those learning outcomes and the approach to learning that students tend to adopt. Such theory has led to an increased focus on student approaches to learning by academic institutions (Entwistle & McCune, 2004).

2.2 Measuring student approaches to learning

Two predominant forms of educational research exist. Lucas & Mladenovic (2004) describe the contrasting methods of phenomenographic and inventory-based research as follows: "Interview research permits access to a rich and detailed source of qualitative variation. Inventories, however, provide access to a greater number of students and support the identification of quantitative variation in a statistical sense". This research paper follows the latter form of research.

Due to the investigatory nature of this research, the use of self-reported inventories was favoured in an attempt to obtain a broad overview of general student tendencies. Such information can inform future complementary phenomenographic research. A number of scholars have contributed inventories to measure student approaches to learning. Each of these inventories comprise a set of statements each of which have been derived from the founding phenomenographic research results. These statements are designed to represent some quality attributable to either a Deep, Surface or Strategic approach to learning. Students indicate their strength of agreement or disagreement to each statement on a 5-point Likert scale. Through the use of exploratory and confirmatory factor analysis, this list of statements is tested for reliability of response. Reliable statements are retained while statements providing inconsistent results are modified or removed altogether.

Two such inventories that were considered for use in this research paper include the Study Process Questionnaire (or SPQ) (Biggs, 1978, as sighted by Biggs, 1979; Biggs, 1987) and the Approaches to Study Inventory (or ASI) (Entwistle & Ramsden, 1983). Both of these inventories have been revised through repeated use in different contexts but remain the foundation for self-reported inventories. The SPQ has been revised and adapted to become the Revised 2-Factor Study Process Questionnaire (Biggs, Kember & Leung, 2001). The ASI has undergone several revisions (Tait & Entwistle, 1996), the

most recent of which resulting in the Approaches to Study Skills Inventory for Students (or ASSIST) (ASSIST, 1997; Entwistle Tait & McCune, 2000).

While the three-factor-structure of the SPQ and ASI/ASSIST has become part of mainstream literature, there remains conflict in the literature as to whether this multi-factor structure is indeed appropriate (Kember, Wong & Leung, 1999). In testing the SPQ, Kember, Wong & Leung (1999) suggested the use of a 2-factor model for use in basic investigations, for example the classification of student approaches to learning as being either Deep or Surface. However, they also suggested the introduction of a more complex instrument to assess the multiple strategy and motive elements present in the dimensionality of approaches to learning (Kember Wong & Leung, 1999). Biggs, Kember & Leung (2001) have subsequently revised the SPQ to become the Revised 2-Factor Study Process Questionnaire. In contrast to this, reliability testing of the ASSIST survey has repeatedly confirmed the appropriateness of the three-factor model. For example, Diseth (2001) performed exploratory and confirmatory factor analysis on a Norwegian version of the ASSIST and found the instrument to be appropriate.

Whilst the Revised 2-factor SPQ consists of only 20 statements measuring two latent factors of Deep and Surface each with two indicators categorised as Motive and Strategy (Biggs, Kember & Leung, 2001), the ASSIST survey measures responses to 52 statements (refer Appendix 1) serving to measure 13 subscales that, in turn, serve as indicators for the three main scales of Deep, Surface and Strategic approaches to learning. These subscales are summarised in Table 2.1 below:

Table 2.1: Three main scales (approaches) and their associated subscales

<p>Deep Approach Subscales: Seeking Meaning (SM) Relating Ideas (RI) Use of Evidence (UE) Interest in Ideas (II)</p> <p>Strategic Approach Subscales: Organised Studying (OS) Time Management (TM) Alertness to Assessment Demands (AD) Achieving (AC) Monitoring Effectiveness (ME)</p> <p>Surface Approach Subscales: Lack of Purpose (LP) Unrelated Memorising (UM) Syllabus Boundness (SB) Fear of Failure (FF)</p>
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While both the SPQ and ASSIST may be equally relevant tools to measure approaches to learning, this research paper will discuss and make use of the ASSIST. Given the comparability of this study with that of Flood & Wilson (2008) in Ireland, the use of consistent methodology allows for greater comparability of results. Furthermore, the ASSIST survey questions appear to be more relevant to the experience of the students sampled in this study.

As a caveat to the use of the ASSIST survey, whilst testing the reliability of the ASSIST survey, Diseth (2001) found problems with the subscales 'Monitoring Effectiveness' and 'Alertness to Assessment Demands'. Both of these factors tended to load on more than one factor – both Deep and Strategic. This is consistent with the results of Flood & Wilson (2008) and shall be important to consider in this research paper.

2.3 Approaches to learning and the learning environment – what is contextual?

Research in the literature identifies an approach to learning as being a response to a context and therefore these approaches may change given a change in student perceptions of a context (Lucas & Mladenovic, 2004). Initial research into student study strategies focussed on the link between motivation, study techniques and performance (Biggs, Kember & Leung, 2001). Subsequently, the effects of teaching methods, the learning environment and changes therein, on approaches to learning were investigated. University teachers have a direct influence on student performance given the materials covered and methods of teaching employed. However, such material and methods can also influence the study approach employed by the student (Biggs, 1999; Trigwell & Prosser, 1991; Biggs, Kember & Leung, 2001). In fact, these materials and methods, as well as assessment, form part of the greater learning environment which is believed to influence student approaches to learning (Biggs, 1999).

Diseth (2007) found a positive correlation between student perception of high workload and a surface approach as well as a weak correlation between amount of effort (time-wise) and achievement. This suggests that approaches to learning may have a more significant influence on academic achievement than time spent studying. Diseth (2007) also deduced that a surface approach is negatively related to academic achievement whilst a strategic approach is positively related. Diseth (2007) suggests that student perceptions of the learning environment affect their approach to learning which in turn affects their academic achievement. The use of questions requiring understanding as well as appeal to the achieving nature of students and downplaying or reducing workload are seen to be potential improvements to the learning environment (Diseth, 2007).

Davidson (2002) conducted research into the relationship of study approach and exam performance. Results indicated a positive relationship between the use of the deep approach to learning and academic achievement on complex questions. No significant relationship was found between academic performance and either approach for less complex questions. Teaching material and assessment complexity is within the control of educators and therefore, as part of the learning environment, could positively influence student approaches to learning. Davidson (2002) suggested three adaptations to teaching and assessment to promote deep learning based on the findings of his research: Firstly, increased discussion of underlying theory and concepts in lectures; Secondly, the inclusion of problems ranging in complexity in teaching material; Thirdly, the use of complex problems in assessment requiring students to assimilate information and engage with a unique problem or scenario (at least one that is not an exact replication of examples included in the teaching material).

Kember & Leung (2005) investigated the influence of the learning environment on the development of the generic capabilities of students undertaking a degree. They described a suitable teaching environment as “characterised by a focus on understanding, the active participation of students in learning activities, a coherent curriculum, and assessment which focused on analytical skills and self-learning capability” (Kember & Leung, 2005, p. 245). Based on the research of Trigwell, Prosser & Waterhouse (1999), classes where teachers focus on knowledge transmission by the teacher is associated with increased likelihood of students adopting a surface approach to learning. Conversely, although with a less strong relationship, students tend to practice a deeper approach where the teacher is student-focussed and actively involved in changing student conceptions of learning.

Such results were echoed in the study of Lizzio, Wilson and Simons (2002), in which heavy workload, bad teaching environment and inappropriate assessment methods were found to influence students toward the use of a surface approach to learning. The strongest predictors of students using a Deep approach to learning were found to be positive perceptions regarding the quality of teaching and appropriateness of assessment (Lizzio *et al.* 2002). Such positive perceptions of the learning environment were seen to positively influence academic achievement and perceived as best developing generic academic and workplace skills (Lizzio *et al.* 2002).

Much of the above literature argues in favour of context being as specific as at a course level. Meyer & Eley (1999 as cited by Lucas & Mladenovic, 2004) argue that that approaches to learning could be discipline or even subject specific. Of course, the question remains as to the definition of subject or discipline-specific – is accounting a discipline, or can each of the four core subjects of Financial

Reporting, Managerial Accounting and Finance, Taxation and Corporate Governance be disciplines of their own?

2.4 Approaches to learning in accounting education

The above literature has supported approaches to learning being a response to a context and therefore understanding approaches to learning in an accounting context becomes an important consideration (Lucas & Mladenovic, 2004). As with the development and revisions of the self-reported inventories, conflict exists in the literature.

Byrne & Flood (2004) investigated the conceptions of learning amongst Irish accounting students and found the majority of students viewed accounting knowledge as reproductive in nature (Säljö, 1979 as cited by Byrne & Flood, 2004). This conception that knowledge is reproductive in nature is thought to be associated with a surface approach to learning (Byrne & Flood, 2004). This is clearly undesirable given the specific discouragement of surface learning by IFAC (IES2, IFAC, 2009, p. 51). Furthermore, Biggs (1999 as cited by Biggs, Kember & Leung, 2001) argues that the generic aim of good teaching is precisely to encourage a deep approach and discourage a surface approach with the aim of creating life-long learners.

Flood and Wilson (2008) utilised the ASSIST to measure approaches to learning of students immediately prior to writing their final professional accounting exam in Ireland. Results from this study indicated that students preferred a Strategic approach to learning, believed to be linked to students engaging in learning activities that were most likely to lead to examination success. To this end, 'Alertness to Assessment Demands' and 'Monitoring Effectiveness' were strong Strategic factors for students of that study. Whilst the deep approach was not favoured, strong responses were noted for 'Seeking Meaning' and 'Relating Ideas' subscales.

Whilst the above studies measured conceptions and approaches to learning at a particular point in time, several longitudinal studies have been conducted to measure changes in student approaches to learning over time – often introducing changes in the learning environment. Hall, Ramsay and Raven (2004) changed the learning environment by implementing group-work tasks in an attempt to induce a 'deeper' approach to learning in first year accounting students. Similarly English, Lockett and Mladenovic (2004) introduced interventions to improve first year accounting students' writing skills. Using the SPQ to measure approaches to learning, results of both studies showed a statistically significant increase in the Deep approach through this implementation.

Ballantine, Duff and Larres (2008) implemented case studies to change the learning environment for undergraduate accounting and business students in three Irish universities. Using the ASSIST to

measure approaches to learning, and contrary to the results of Hall, Ramsay and Raven (2004), results indicated a statistically significant increase in the Surface approach to learning over time. Delving deeper into the result of the subscales indicated a statistically significant increase in the Deep subscales of 'Relating Ideas' and 'Use of Evidence' but also achieving a significant increase in the Surface subscale of 'Lack of Purpose'.

2.5 The relationship between approaches to learning and academic performance and the potential influence of gender

A number of studies have been conducted into factors that can be used to predict future academic performance. Where lecturers and universities strive for excellent pass rates without compromising standards, any problems should be identified at the root cause. Several studies have found that the best predictor of future academic or examination performance is prior academic performance (Davidson, 2002; Duff, 2004; Diseth *et al.* 2009). Based on the theories of Biggs' 3P-model, this prior academic performance should interact with and influence current and future approaches to learning techniques. Similarly, Diseth *et al.* (2009) conclude that academic performance is directly affected by prior exam performance, current efforts and approaches to learning but indirectly affected by the learning environment. Whilst Davidson (2002) found motivation to be a strong influence on academic performance, Diseth *et al.* (2009) found no difference in the approaches to learning between psychology students choosing to continue with studies in psychology and those that discontinued (those students seeking to continue were thought to be more motivated). This seems contradictory if one is to assume that students choosing to continue in a specific field should have a stronger motivation.

However, there appears to be some degree of consensus that a deep approach to learning is positively correlated to academic performance (English *et al.* 2004; Davidson, 2002) and throughput rates (Duff, 2004), while a surface approach is negatively correlated to academic grades (Ramburuth & Mladenovic, 2004).

In terms of differences in approaches to learning between genders, Ballantine, Duff and Larres (2008) found no statistically significant difference in approaches to learning – or changes therein over time – based on gender. Flood and Wilson (2008) did find that female students had a statistically significantly greater fear of failure than male students preparing for their final Irish professional accounting examination.

2.6 Conclusion

Jackling and de Lange (2009) conducted research in Australia into the divergence of accounting education and the expectations of employers. The research revealed that there appears to be a distinct lack of generic skills being taught at universities in Australia specifically within the realm of accounting education. To combat this, some universities have developed policies to develop technical skills in related disciplines as well as qualities serving the learner beyond graduation – including the skills of life-long learning (IFAC, 2009), effective communication, organisational skills and ethical behaviour (Jackling & de Lange, 2009). Like South Africa, member Australian accounting bodies also subscribe to the IFAC codes requiring members to commit to life-long learning through continuous professional development programmes (Jackling & de Lange, 2009; IFAC, 2009). However, accounting curricula are technically complex and high in volume leading to little time to incorporate new interventions to develop generic skills. Such high volume has been seen as correlated with a Surface approach to learning (Diseth, 2007; Lizzio, Wilson and Simons, 2002) and the accounting education literature reveals a mix of Surface (Ballantyne *et al.* 2008) and Deep/Strategic (Hall *et al.* 2004; English *et al.* 2004) approaches to learning developing over time. With a perceived high-volume workload in South African accounting education and if students do in fact perceive accounting information as being reproductive in nature, as Byrne and Flood (2004) suggest, this raises the concern that South African accounting students may be adopting a Surface approach to learning. Given the necessity to discourage a Surface approach (IFAC, 2009; Biggs, 1999 as cited by Biggs, Kember & Leung, 2001), the question becomes: Are there other factors of the learning environment that can mitigate this high-volume workload?

The UCT PGDA is a one-year programme filled with weekly problems varying in complexity and regular assessments requiring a student to assimilate large volumes of information and answer questions requiring a candidate to exhibit understanding – at least, that is the perception of the researcher. Such attributes of the learning environment are consistent with the suggestions for improving the learning environment toward promoting a Deep approach to learning as expressed by Davidson (2002) as well as Kember and Leung (2005).

Based on the literature, it is not clear that approaches to learning of South African accounting students will be Deep, Surface or Strategic. In an attempt to establish whether the skills for life-long learning are being fostered in South African accounting education at UCT, this research seeks to build on existing literature by measuring student approaches to learning in a South African accounting education context using the ASSIST inventory (ASSIST, 1997). In so doing, an investigation into potential contributing factors such as academic achievement (English *et al.* 2004; Davidson, 2002; Ramburuth & Mladenovic, 2004) and gender (Flood & Wilson, 2004) is undertaken.

Chapter 3: Research Methodology

3.1 Measuring student approaches to learning

The underlying research problem involves establishing student tendencies toward specific approaches to learning as well as investigating possible differences in these approaches due to variations in context, gender and prior academic performance. The literature has established the theoretical underpinnings of approaches to learning framework (Lucas & Mladenovic, 2004) upon which this research is based. The ‘approaches to learning’ framework largely assumes a constructivist perspective – students experience and respond to a particular environment or context (Lucas & Mladenovic, 2004). Therefore, this research does not attempt to classify individual students as ‘deep’ or ‘surface’ learners. It is understood that a student adopts a specific approach in response to a particular context (Lucas & Mladenovic, 2004). While the use of phenomenographic research techniques can provide greater detail as to how specific students respond to learning in a specific context, the use of self-reported inventories allows the sampling of a greater number of students. A larger sample size allows for a clearer picture of the population response to a context and can serve as a basis for further phenomenographic research.

Therefore, this research makes use of the self-reported ASSIST inventory to measure PGDA students’ approaches to learning. Preference was given to the use of the ASSIST as the nature of the statements appeared more relevant to the cohort of students as well as for the purposes of comparability with the prior research of Flood and Wilson (2008).

The ASSIST survey (refer Appendix 1) is designed to capture student tendencies to exhibit thirteen attributes, known as subscales (Refer Table 2.1 above). Four statements are designed to best represent each of those thirteen attributes (refer Appendix 2). Four statements for each of the thirteen subscales results in a 52-statement inventory to which responses are measured on a 5-point Likert scale. To avoid any possible bias by numbering the Likert scale one through five – accounting students may have a tendency to consider numbers as representing an equidistant scale – the letters A to E were used and coded as follows:

“A”	“A – Agree”
“B”	“B – Agree Somewhat”
“C”	“C – Neutral”
“D”	“D – Disagree Somewhat”
“E”	“E – Disagree”

It must be emphasised that the self-reported responses represent student perceptions toward each of the 52 statements. These perceptions are open to bias – for example, men may have a tendency

to be more overconfident in their abilities and therefore respond more strongly to certain statements than women or generally interpret statements differently (Willows, 2012; Willow & West, 2012; de Lange & Mavondo, 2004). To minimise any response bias associated with answering each of the four subscale questions consistently due to perceived similarities when asked together as a group of questions, the questions are presented in a randomised order (refer Appendix 1).

The study by Flood and Wilson (2008) utilised the ASSIST to measure approaches to learning of students immediately prior to writing their Final Admitting Examination for the Institute of Chartered Accountants in Ireland (ICAI), another IFAC member body. While this is perhaps not equivalent to the SAICA Part 1 Qualifying Examination, it does cover the four core disciplines of Financial Reporting, Managerial Accounting and Finance, Taxation and Corporate Governance (predominantly Auditing / Assurance). Due to commonality of IFAC membership and therefore similarity in skills and competencies required of members of both ICAI and SAICA, the results of this study shall serve as a basis for comparison.

3.2 Application of the ASSIST and data collection

The PGDA class of 2009 was approached to complete the ASSIST survey on a voluntary basis. The population generally represents fourth and fifth year students having completed either a Bachelor of Commerce degree majoring in accounting, or a Bachelor of Business Science degree majoring in finance and accounting. For the purposes of this study, no distinction has been made between Bachelor of Commerce and Bachelor of Business Science students as the main focus of this study is to investigate the approaches to learning of the cohort as a collective.

The survey was administered in late August of 2009, approximately one month prior to the writing of the final PGDA examinations. By this point in the academic year, the vast majority of the work has been completed and all assessments barring the final examination have been written. Students are believed to be appropriately prepared to write SAICA Part 1 Qualifying Examination.

The ASSIST was accompanied by a coversheet requesting basic demographic information such as gender, ethnicity and educational history. The issue of a survey to students requesting personal information requires approval of the University of Cape Town Ethics in Research Committee. Given that the survey was anonymous and required little personal information other than basic demographics, such approval was granted.

Students completed the demographics and ASSIST in one of two forms: an electronic copy or physical copy. The electronic copy of the ASSIST was captured in a Microsoft Excel document and selectively protected to ensure the integrity of the document was maintained. The electronic copy of

this survey was placed on the local intranet for students to download. Students could either submit the survey electronically via email or print the survey and return the hard copy to the researcher. The survey itself expressed specifically that all responses would remain anonymous and also expressed the optionality of the demographic information.

Due to the anecdotal evidence of potential differences in approach to studying each of the four core courses of the PGDA as well as the argument of different disciplines shaping learning behaviours (Lucas & Mladenovic, 2004), students were requested to respond to the survey for each of the four PGDA subjects: Financial Reporting, Managerial Accounting and Finance, Taxation and Corporate Governance (including advanced Auditing as well as ethical requirements and the King code for effective corporate governance).

76 completed surveys were received from a class of approximately 330 students representing a response rate of 22.7%. All responses were captured in a single Microsoft Excel document and loaded into the IBM Statistics Package for the Social Sciences (SPSS) version 20 for statistical analysis.

3.3 Testing the reliability of the survey instrument

The ASSIST survey has been developed and revised predominantly in the United Kingdom (Entwistle *et al.* 2000). While South Africa is a commonwealth country, there are significant cultural and schooling infrastructure differences between the countries (Entwistle *et al.* 2000). Prior research has established the need to perform confirmatory factor analysis to confirm that responses to the ASSIST inventory are consistent with the initial design.

The ASSIST inventory, like other self-reported inventories, is designed to measure the three defined approaches to learning. Each of the four statements for each subscale within each approach is designed to invoke a similar response from students. Similarly, each of the subscales believed to be attributes of one of the approaches should be highly correlated to that factor and the other subscales within that approach. For example, the pattern of responses to the four questions of the deep approach 'Relating Ideas' subscale should be correlated to the deep approach 'Use of Evidence' subscale. Similarly, by nature of the inventory design, the expected pattern of responses to the surface subscale of 'Fear of Failure' should be relatively uncorrelated (or negatively correlated) to all of the subscales within the Deep and Strategic approaches.

It is this deliberate design of the instrument and the correlation or co-variation of responses to specific statements that makes confirmatory factor analysis appropriate. Confirmatory factor analysis allows for the testing of the inventory's ability to produce accurate measures of tendencies toward certain attributes. In simple terms, factor analysis groups together variables (in this case

subscales) that exhibit some degree of multicollinearity with other variables. This grouping is done in a linear fashion in a manner that explains the greatest amount of common variance. This linear grouping allows the reduction of the number of factors that explain variation in the response data. To this end, one would expect the four subscales of the deep approach to group together to form a single factor and similarly for the other two approaches and their related subscales. These groupings are determined by the strengths to which each subscale is correlated with one of the factors – it is likely to load on all three factors but be particularly strong on one factor.

Confirmatory factor analysis utilising maximum likelihood extraction with oblique rotation has been performed on the survey responses for each of the four core PGDA subjects. Cronbach Alphas were calculated for each of the main scales, for each subject, as a means of supporting the results of the factor analysis. While maximum likelihood extraction with oblique rotation is not the only form of factor analysis, this approach is consistent with the Irish study by Flood and Wilson (2008). For comparability purposes, this methodology is used.

3.4 Interpretation of the survey data

Survey data constituted the responses of individual students. The responses to each statement on the 5-point Likert scale “A” – “E” were re-coded as 1 through 5. The re-coded numerical responses could then be added together. As is consistent with prior research, the survey is interpreted by adding together the numerical responses for each of the four questions of the 13 subscales (ASSIST, 1997). This yields a sum total for each subscale varying between 4 and 20. Each of the subscales totals can in turn be added together to form a sum total for each of the main scales (Deep, Strategic and Surface). These totals for Deep and Surface vary between 16 and 80 while the total for Strategic can vary between 20 and 100 (as it consists of five subscales as opposed to four).

Once the totals for each of the subscales and each of the main scales have been calculated for each of the individual respondents, descriptive statistics and other statistical tests can be performed. The focus of this study is to analyse the approaches to learning of the cohort sampled rather than individual students. It is not the intention to classify individual students as being Deep, Surface or Strategic learners. In interpreting the results, only the strength of tendencies toward each approach to learning can be assessed and whether the distributions of responses are statistically significantly different from one another. Therefore, the basis for the analysis of the data shall be as simple as the medians and ranges of the sum totals for each of the subscales and main scales, across the four core subjects – due to non-normality of the data, medians and ranges are used as measures of central tendency as opposed to means and standard deviations.

Statistical tests for significance were performed in order to assess any observed differences in responses. The data was first analysed for normality using the Kolmogorov-Smirnov and Shapiro-Wilkinson tests for normality. As anticipated, the sum totals for the subscales were indeed non-normal and hence non-parametric testing was used. Related-samples Friedman's Two-Way Analysis of Variance by Ranks using Pairwise Comparison was chosen to test for statistically significant differences in distributions for the population as a whole while Independent-Samples Kruskal Wallis tests were used to test differences between sub-populations (differences between mark categories and gender).

3.5 Limitations

Several limitations exist due to the nature of the research undertaken. Firstly, the use of a survey to measure approaches to learning requires students to respond to questions probing activities undertaken and emotions felt whilst studying. It must be made clear that students will respond based on their own perceptions of how they learn or approach specific tasks. These perceptions may be inherently biased. A student may perceive their approach as perhaps making appropriate 'Use of Evidence' but this may in fact differ from reality. Students may also perceive differences between approaches to each of the four core subjects or indeed perceive no differences, and this may not appropriately reflect the students' behaviours. However, any possible bias in this regard is likely to be mitigated by the sample size and the maturity of the students who had no incentive to respond inaccurately.

A second possible limitation is that of response bias. 76 complete responses were received from a class of approximately 330. The sample itself is large enough to satisfactorily complete the necessary statistical analysis. However, whether this sample is representative of the class would be of concern. There is the possibility that the respondents represented the majority of the 'more-inherently-interested' students of the class, and therefore may skew the results. Part of the demographic information required for the survey included a self-reported mark category. Based on this information, a broad diversity of students varying in academic achievement (mark categories ranging from 0% to 100%) were present in the sample, although the distribution of the sample was marginally different to that of the class as a whole. Based on the assumption that approaches to learning have a direct influence over academic achievement, there remains reason to believe that this sample is sufficiently diverse to achieve reliable results – although it may be difficult to extrapolate the results to the PGDA population.

Chapter 4: Results of Statistical Analysis

4.1 Results of instrument reliability testing

No existing literature was found to support student approaches to learning within an accounting context at the University of Cape Town. Therefore, as is consistent with prior research, statistical analysis for the reliability of the ASSIST questionnaire was performed based on the sample collected.

Reliability of the 13 sub-scales of the ASSIST survey was assessed by calculating Cronbach Alphas and thereafter performing factor analysis using maximum likelihood extraction with oblique rotation. As has been discussed in the methodology chapter, factor analysis measures the level of correlation of each of the sub-scales with each of the three main factors (in this case approaches) given the observed data. These subscales are grouped together in a linear fashion so as to explain the greatest amount of common variance. Each of these linear groupings represents a factor and in theory, each of these factors should by design represent one of the three approaches to learning: Deep, Strategic and Surface. The desired output from a factor analysis based on the inventory design should be that each of the subscales should correlate to their corresponding approach – in other words, ‘Seeking Meaning’, ‘Relating Ideas’, ‘Use of Evidence’ and ‘Interest in Ideas’ should correlate most with the Deep factor and the responses to each of these subscales should exhibit consistent variability.

Confirmatory factor analysis requires a sufficiently large sample size. SPSS performs a Kaiser-Meyer-Olkin Measure of Sampling Adequacy (results greater than 0.7 are considered appropriate although any value above 0.5 is considered acceptable). As per the results in Appendix 3, all tests for sampling adequacy reflected a sufficiently large sample. Furthermore, a Bartlett’s Test of Sphericity was performed to confirm the existence of some relationship between the variables being tested. This test was also significant at a 1% level – refer to Appendix 3.

Confirmatory factor analysis using maximum likelihood extraction with oblique rotation in SPSS version 20 resulted in the following Pattern Matrix for each of the four core subjects responded to:

Table 4.1.1: Factor analysis of 13 sub-scales compressed in 3 components – Financial Reporting
Pattern Matrix^a

	Component		
	1 - Strategic	2 - Deep	3 - Surface
Seeking Meaning		.711	
Relating Ideas	-.245	.857	
Use of Evidence		.695	
Interest in Ideas		.457	
Organised Studying	.486		
Time Management	.926		
Alertness to Assessment Demands	.255	.241	
Achieving	.774		
Monitoring Effectiveness	.222	.530	-.246
Lack of Purpose	-.242		.417
Unrelated Memorising			.828
Syllabus Boundness			.441
Fear of Failure			.460
Cronbach Alpha	.741	.723	.609

Extraction Method: Maximum Likelihood. (all values below 0.2 excluded)

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Table 4.1.2: Factor analysis of 13 sub-scales compressed in 3 components – Managerial Accounting and Finance
Pattern Matrix^a

	Component		
	1 - Strategic	2 - Deep	3 - Surface
Seeking Meaning		.656	
Relating Ideas		.845	
Use of Evidence		.702	
Interest in Ideas		.565	-.343
Organised Studying	.449		
Time Management	1.027		
Alertness to Assessment Demands		.303	
Achieving	.700		-.323
Monitoring Effectiveness	.302	.479	
Lack of Purpose			.612
Unrelated Memorising			.610
Syllabus Boundness			.284
Fear of Failure			.622
Cronbach Alpha	.735	.760	.635

Extraction Method: Maximum Likelihood. (all values below 0.2 excluded)

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Table 4.1.3: Factor analysis of 13 sub-scales compressed in 3 components - Taxation

Pattern Matrix^a

	Component		
	1 - Strategic	2 – Surface	3 - Deep
Seeking Meaning			.685
Relating Ideas			.842
Use of Evidence			.613
Interest in Ideas			.454
Organised Studying	.502		
Time Management	1.057		
Alertness to Assessment Demands			.417
Achieving	.551	-.238	
Monitoring Effectiveness			.512
Lack of Purpose	-.203	.301	-.303
Unrelated Memorising		.980	
Syllabus Boundness		.273	
Fear of Failure		.433	
Cronbach Alpha	.704	.594	.737

Extraction Method: Maximum Likelihood. (all values below 0.2 excluded)

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 8 iterations.

Table 4.1.4: Factor analysis of 13 sub-scales compressed in 3 components – Corporate Governance

Pattern Matrix^a

	Component		
	1 - Strategic	2 - Deep	3 - Surface
Seeking Meaning		.618	
Relating Ideas		.689	.247
Use of Evidence		.696	
Interest in Ideas	.588		
Organised Studying	.391	.296	
Time Management	.576	.203	
Alertness to Assessment Demands			.290
Achieving	.974		
Monitoring Effectiveness		.716	-.241
Lack of Purpose	-.649		
Unrelated Memorising		-.286	.669
Syllabus Boundness	-.356		.230
Fear of Failure			.385
Cronbach Alpha	.707	.741	.471

Extraction Method: Maximum Likelihood. (all values below 0.2 excluded)

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 7 iterations.

The above factor analysis technique extracts factors in the order of most explanatory power. Therefore, the first factor extracted represents the factor that explains the greatest amount of

common variance, *et cetera*. Positive factor loadings represent positive correlation with that factor whilst the greater the negative factors loading, the more uncorrelated that subscale is to that factor. These factor loadings represent a correlation or regression coefficient and values greater than 0.4 are considered relatively strong (Field, 2009). Values greater than one do not invalidate the results but indicate a high degree of multicollinearity – these loadings are less than one upon inspection of the Structure Matrix. Factors extracted are not automatically allocated a label of Deep, Surface or Strategic but rather extracted in order of explanatory power and the researcher allocated labels to each factor based on the expected and actual subscale groupings.

For the subjects of Financial Reporting, Managerial Accounting and Finance as well as Taxation, each of the subscales correctly load onto a specific factor in a manner consistent with the research of Flood and Wilson (2008). However, as per the above tables, certain sub-scales have loaded onto more than one factor or indeed the incorrect factor grouping. The subscales of ‘Monitoring Effectiveness’ and ‘Alertness to Assessment Demands’ are consistently problematic. However, this is consistent with the results of prior research (Byrne, Flood & Willis, 2004; Flood & Wilson, 2008; Diseth, 2001) and does not invalidate the instrument for use in this context. Confirming the appropriateness of the confirmatory factor analysis above, Cronbach Alphas were calculated for the subscales of each of the above three factors and ranged from 0.594 to 0.760 (as per Tables 4.1.1 through 4.1.3 above). Field (2009) expresses that values above 0.7 are preferred but any value above 0.5 is acceptable. This range of Cronbach Alphas is also comparable to the study of Flood and Wilson (2008).

Responses to the inventory for the subject of Corporate Governance (Table 4.1.4 above), indicates inconsistencies in factor loading when compared with the other three subjects and prior research. In this case, both ‘Alertness to assessment demands’ and ‘Relating Ideas’ factors have loaded onto the Surface factor – albeit very weakly – while ‘Interest in Ideas’ has loaded strongly onto the Strategic factor. Similarly, the Cronbach Alpha for the Surface factor drops below the acceptable 0.5 threshold to 0.471. Such results are unexpected given the theoretical underpinnings of the ASSIST inventory and the results achieved for the other three subjects – although it is really only the ‘Interest in Ideas’ subscale that behaves in an unexpected manner with any degree of strength. Such results are perhaps an indication of ‘dissonance’ (Meyer, 2000). Meyer (2000) explains dissonance as where “explanatory variation in contextualised learning behaviour fail to appear in a readily recognisable and interpretable form” (p. 6). The concept of dissonance has historically been reserved for academically weak students (Entwistle, Meyer & Tait, 1991) that “do not exhibit the theoretically expected relationships between contrasting aspects of learning behaviour and associated

perceptions of the learning environment” (Meyer, 2000, p. 8). Meyer (2000) posits that dissonance can occur particularly where student learning behaviours ‘conflict’ with the learning environment. Investigation of the factors within the learning environment or the student learning behaviours that may cause such dissonance is not the subject of this study.

Such disparity in results could also indicate response bias as a result of students’ perceived need to differentiate their response for Corporate Governance from those of the other three subjects. Although this could equally indicate that students perceived the learning environment for Corporate Governance as being different to the other three subjects. Such results do not invalidate the inventory and Chi-squared tests of the factor models for each of the four core subjects were acceptable (refer Appendix 4). However, caution was exercised when interpreting the results for Corporate Governance specifically.

4.2 Analysis of responses

4.2.1 Descriptive Statistics

The cover page for the survey contained questions regarding demographic information including gender, home language, ethnicity, high school attended, degree completed, prior experience as a tutor and the approximate year mark to date for each of the four core subjects. Such demographic information allows for the investigation of differences between sub-populations within the sample. Whilst ethnicity and prior high school experience are particularly pertinent in South African education given the history of inequality, such aspects can form individual research topics on their own – for example, the role of cultural factors in learning behaviour (Sugahara & Boland, 2010). Therefore, in the interest of maintaining a focus on preliminary investigations and in line with prior research into approaches to learning, only gender and academic performance will be analysed here.

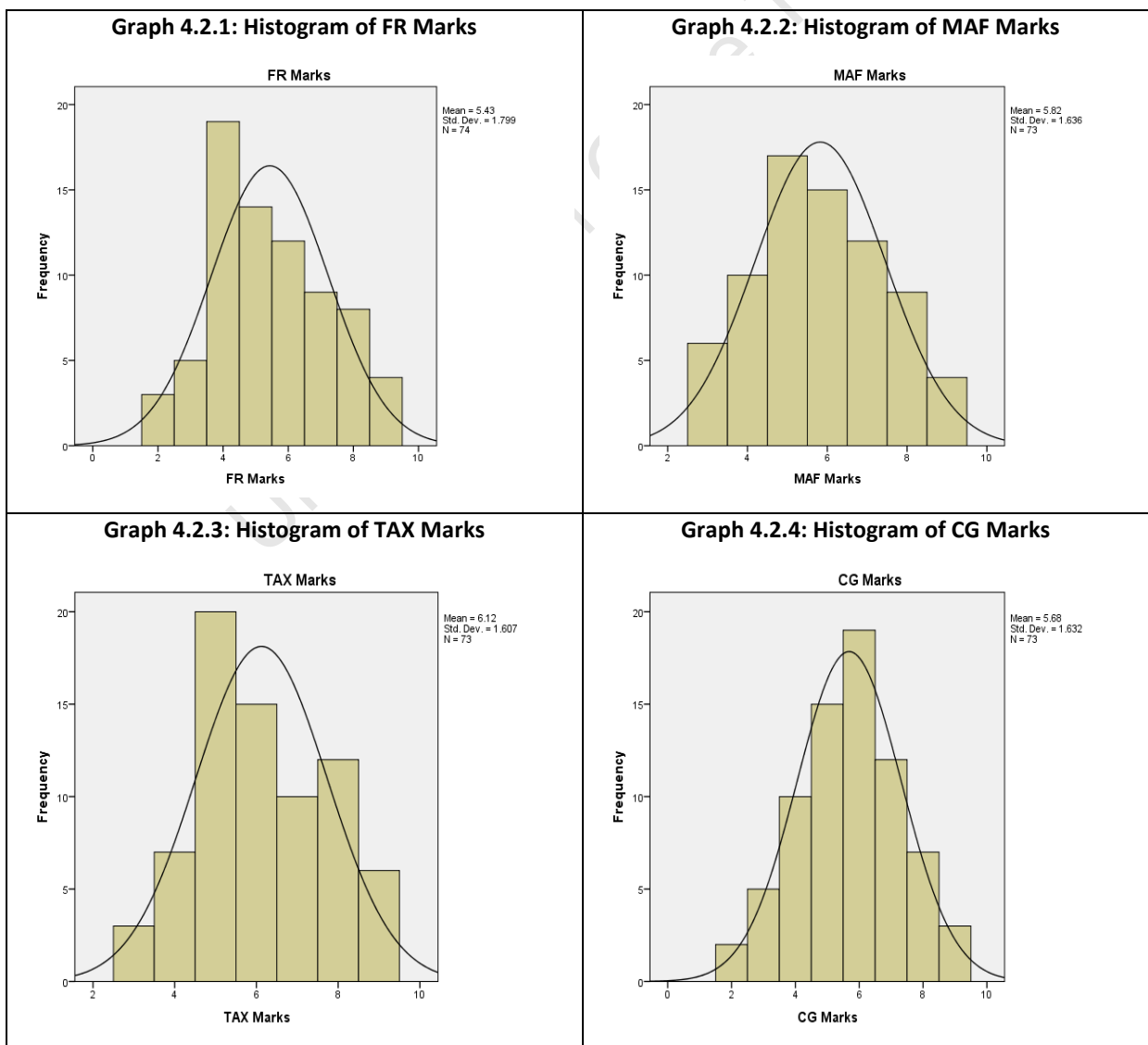
A total of 76 completed surveys were received from the 2009 PGDA class. Of these surveys, several were incomplete in certain aspects but rather than being excluded completely, these have been included in the sample and SPSS removes incomplete responses when performing any statistical test.

On the basis of the responses, 42.1% of the respondents were female, 56.6% were male and 1.3% failed to specify. Students were requested to indicate in which mark category (refer Table 4.2.1) their year mark average fell at the time of completing the survey. Given that this survey was completed in late August 2009, only the final examination was outstanding and therefore these mark categories, or at least the distribution thereof, should be representative of the final results. As

such, the following four diagrams (Graphs 4.2.1 through 4.2.4 below) present the distributions of marks according to the categories contained in Table 4.2.1 below.

Table 4.2.1: Categories for average year mark per subject

<u>Category Code</u>	<u>Mark Range</u>
1	0 – 30%
2	30 – 40%
3	40 – 45%
4	45 – 50%
5	50 – 55%
6	55 – 60%
7	60 – 65%
8	65 – 70%
9	70 – 100%



By visual inspection alone, it is noticeable that all of the subjects have a relatively normal distribution, however, FR has a greater number of students below 50% and there are longer tails toward the upper end of each of the four distributions. This could be attributable to students falling into category 1 (0 – 30%) having already been academically excluded from continuing in the programme in June 2009. These distributions do provide some comfort that a good spread of academically strong and weak students responded to the survey, although these distributions are not necessarily representative of the PGDA class as a whole.

4.2.2 Tests of Normality

In determining the appropriate statistical tests to perform in analysing this survey data, it is important to understand whether the underlying data is normal in distribution. To this end, the distributions of the sum totals for the subscales for Financial Reporting were subjected to a Kolmogorov-Smirnov and Shapiro-Wilkinson test for normality. A Lilliefors Significance Correction is performed by SPSS and the results remained definitive: Some of the subscale responses for Financial Reporting are non-normal. This can be confirmed by inspection of the histograms as presented in Appendix 5. Therefore, non-parametric tests become appropriate for all non-normal data. In an effort to preserve comparability, non-parametric tests shall be used throughout significance testing.

4.2.3 Tests of Significance

The responses to the ASSIST survey questions were captured in Microsoft Excel and the 5-point Likert scale of 'A – Agree' to 'E – Disagree' was re-coded to 1 through 5 respectively. This allowed for the responses to individual questions within each subscale to be added together to yield a sum total for each subscale. The sum total of the four questions of each subscale can range between 4 and 20. A value toward the lower end of the subscale (closer to 4) would indicate a strong tendency toward that subscale whilst a higher score (closer to 20) would indicate a weaker tendency toward that subscale. If avoiding a Surface approach to learning is the goal of education, the results should reflect each of the Surface subscales scoring higher (closer to 20) and each of the subscales for the other approaches scoring lower (closer to 4).

The values of the main scales of Deep, Strategic and Surface are calculated in the same manner as the subscales. The values of each of the subscales (ranging between 4 and 20) specific to the Deep approach are added to yield a sum total for that main scale or approach, and this approach is repeated for the other main scales. Both Deep and Surface approaches consist of four subscales, therefore the range of values for these main scales should vary between 16 at the lower end (stronger tendencies toward that approach) and 80 at the higher end (weaker tendencies toward that approach). The Strategic approach consists of five subscales and therefore the range of values varies between 20 and 100. As is consistent with the study by Flood and Wilson (2008), an

adjustment is made to the Strategic approach main scale, multiplying it by four-fifths to make the total values directly comparable to the other two main scales.

Due to the non-normality of the data, Median and Interquartile Range shall be used as measures of central tendency and distribution as opposed to Mean and Standard Deviation – although values for the mean and standard deviation are presented in Appendix 6. The median and interquartile range for each of the main scales and their subscales for each subject are presented in Table 4.2.2 overleaf.

It must be reiterated that this research is not attempting to classify students as either Deep, Surface or Strategic learners individually. The medians and ranges calculated overleaf measure stronger or weaker tendencies toward each of the three approaches. Generally, each student will show a stronger tendency toward one (or two) of the three approaches but in varying degrees. Therefore, by design there should be a statistically significant difference between the distributions of the three approaches. Delving deeper, the distributions of each subscale making up each main approach can be tested for statistically significant differences with one another. Based on the concept that the subscales of each approach should be correlated with that approach or factor and exhibit some degree of multicollinearity (being correlated with one another), there may or may not be statistically significant differences between each of the subscales of each approach.

A high-level analysis of the medians and ranges disclosed in Table 4.2.2 reveals that the student sample predominantly adopts a Strategic approach for all four subjects. While a predominant Deep approach would be preferable, what is encouraging is the aversion to the Surface approach. This is in line with the goals of the IFAC International Education Standards and offers comfort to academic staff members.

However, the above overview does not provide definitive answers. In the sections that follow, statistical analysis shall be used to answer the research questions posed in Chapter 1. Such tests were performed on the distributions for each subject individually as well as for the distribution between the four subjects. Gender and academic performance are two key factors that have been highlighted in prior research and shall also be discussed in the sections that follow.

Table 4.2.2: Median and Interquartile range values for each main scale and subscale

	<u>FR</u>		<u>MAF</u>		<u>TAX</u>		<u>CG</u>	
	Median	Interquartile Range	Median	Interquartile Range	Median	Interquartile Range	Median	Interquartile Range
Deep Approach	37	8	38	10	39	13	48	15
Strategic Approach	34	9	36	12	35	10	45	12
Surface Approach	52	13	50	14	51	12	47	12
Deep Approach Subscales								
Seeking Meaning	9	2	9	4	10	4	11	5
Relating Ideas	10	4	10	4	11	4	12	4
Use of Evidence	8	2	8	2	8	4	11	4
Interest in Ideas	10	5	9	5	9	6	15	6
Strategic Approach Subscales								
Organised Studying	9	4	10	4	9	4	12	5
Time Management	7	4	8	5	7	4	13	7
Alertness to Assessment Demands	10	5	10	4	10	4	10	4
Achieving	7	4	8	4	7	3	10	5
Monitoring Effectiveness	9	5	10	5	10	5	11	6
Surface Approach Subscales								
Lack of Purpose	17	4	17	4	17	4	15	4
Unrelated Memorising	15	5	15	5	13	5	12	5
Syllabus Boundness	10	5	10	5	10	6	8	5
Fear of Failure	9	7	9	8	10	8	12	6

Question 1: Are students studying toward a Post-Graduate Diploma in Accounting at the University of Cape Town dissuaded from the use of a surface approach to learning as indicated in their responses to the ASSIST questionnaire for each of the four core subjects?

For each of the four core subjects of the UCT PGDA, the following null hypothesis is tested:

Null Hypothesis: The distributions for Deep, Surface and Strategic Approaches are the same.

Table 7.1 of Appendix 7 contains the results of the related-sample Friedman's Two-way ANOVA with Pairwise Comparison. SPSS performs a Bonferroni adjustment to the level of significance in determining which Pairwise tests are significant.

Statistically significant differences between the three approaches exist for the three subjects of Financial Reporting, Managerial Accounting and Finance and Taxation. For all three aforementioned subjects, the Surface approach differs significantly from both Deep and Strategic, but Deep and Strategic are not significantly different from one another. Based on the results contained in Table 4.2.2 above, students predominantly favour a Strategic and Deep approach to learning. Perhaps this favours the Biggs, Kember and Leung (2001) argument for a 2-factor inventory: to classify learning only in terms of Deep and Surface each with an underlying strategy and motive element – especially given the tendencies of a number of the Strategic subscales to load onto the Deep factor when performing factor analysis.

However, no statistically significant difference was found between the distributions of the three approaches to learning for the subject of Corporate Governance. This result remains undermined by the results of the factor analysis as discussed above. If these results are indeed accurate, the PGDA students sampled have no dominant approach to studying Corporate Governance. This could add weight to the argument that students view each of the subjects differently (or perceive the learning environments for different subjects differently) and therefore may adapt their approaches to learning accordingly.

Investigation of the individual subscales within each of the three approaches for each of the four subjects confirms statistically significant differences between the distributions of the subscales across all three approaches and for all four subjects:

'Use of Evidence' proves consistently to be the strongest of the four Deep subscales. This is unsurprising given the university-specific undergraduate and postgraduate training that the majority of the respondents would have received. The majority of assessments at a PGDA level consist of case-study style questions requiring candidates to assimilate written information and answer an array of both technical and broad discursive questions.

'Relating Ideas' appears to be the weakest of the four Deep subscales and is consistently significantly different from at least one of the four subscales for each of the four subjects. This could be due to a number of factors. Firstly, the nature of the statements for the 'Relating Ideas' subscale are somewhat non-specific – they are open to the interpretation of developing an 'opinion' about how the material fits together. The nature of the PGDA subjects is somewhat more structured than in other disciplines and therefore students may not agree as strongly with these statements.

Alternatively, this may indicate a poor ability to integrate knowledge. Academic staff members actively attempt to practice integration of material especially in assessments questions at a PGDA level. Having said this, many of the topics across all four subjects are taught in a modular fashion. For example, free cash flow valuations will be taught as a section over a two week period. Within this section, principles taught in other sections may be integrated; however, this integration may not be the main focus of the section being taught. Secondly, despite several sections of work being examined in a single scenario, many of these questions, unless broad and discussive, tend to focus on a particular aspect. Therefore, whether there is indeed constructive alignment between the teaching of topic integration to promote Deep learning and the way in which it is assessed becomes an area for further investigation.

'Seeking Meaning' is the second strongest subscale in the Deep approach for all four subjects. This is encouraging given the emphasis placed by the teaching staff on the understanding of the underlying material and correlates with the strong responses to 'Use of Evidence'. 'Interest in Ideas' becomes the second weakest scale in all but Corporate Governance. This is concerning that students in their fourth or fifth year of study do not exhibit a greater interest in the subject matter in which they will be immersed as a professional. However, such weakness in response could be attributable to the nature of the statements for the 'Interest in Ideas' subscale. Statements such as "Regularly I find myself thinking about ideas from lectures when I am doing other things" and "I sometimes get 'hooked' on academic topics and feel I would like to keep on studying them" (ASSIST, 1997; Appendix 1 & 2) are unlikely to invoke strong agreement with PGDA students given the volume of work and time pressure.

Barring MAF, responses to all of the Strategic subscales were, on average, stronger than the 'Interest in Ideas' subscale of the Deep approach. In particular, 'Time Management' and 'Alertness to Assessment Demands' proved to be two subscales whose patterns of responses were statistically significantly different from other Strategic subscales. 'Time Management' focuses on making the best use of the time available and therefore strong agreement to this subscale makes sense given the volume of work covered in PGDA as well as the time pressure imposed in the assessment

process. By the time students reach the PGDA, they have completed a rigorous undergraduate degree where effective time management is impressed on students.

'Alertness to Assessment Demands' attempts to capture student tendencies to be 'cue-conscious' (Miller & Parlett, 1974 as cited by Marton & Säljö, 1976a) – to determine the best answer to questions given the manner in which the topic was lectured and the perceived needs of the marker. This subscale received weak responses (or at least weaker than most of the other Strategic subscales). Assessment questions at a PGDA level follow a general style. Although often developed by different academics, a number of key individual academics are responsible for the establishment of this consistent style. A suggested solution and marking schedule is developed for each assessment question. This level of marking detail results in the marking of accounting assessments being less subjective and more 'right or wrong'. Given this tendency toward 'right and wrong' answers in accounting and that this may be more prominent in accounting than may be typical of other disciplines, this lack of subjectivity does confirm (in part) the weaker tendencies towards cue-consciousness.

In examining more closely the individual subscales of the Surface approach, great comfort is taken in the aversion to the 'Lack of Purpose' and 'Unrelated Memorising' subscales. Given that this cohort of students is in their final year of study prior to entering the professional world, the aversion to 'Lack of Purpose' – questioning whether the courses studied are relevant or worthwhile – is logical. This subscale is also somewhat of an opposite to 'Interest in Ideas' in the Deep approach. Therefore, while there was disappointment at the weakness of the responses to the 'Interest in Ideas' subscale, at least there is some belief that the content is relevant and not entirely uninteresting. 'Unrelated Memorising' could be seen as an opposite to 'Relating Ideas' and 'Use of Evidence'. Once again, results seem to indicate that the assessment process is not allowing students to practice unrelated memorising to cope with the volume and time pressure of PGDA, especially given their Strategic tendencies. On a related note, 'Fear of Failure' received strong responses and this is not unexpected given the workload and time pressure experienced by students in the PGDA and their assessments as well as the proximity to the exit point from tertiary education and entrance to the profession.

Of the four subjects, only Corporate Governance responses behaved dramatically differently from the responses to the other three subjects, especially with regards the Surface and Strategic approaches. The median disclosed in Table 4.2.2 above indicate students have weak 'Interest in Ideas' and 'Relating Ideas'; exhibit weak 'Organised Studying' and 'Time Management'; have less 'Fear of Failure' and are more 'Syllabus Bound'. In relation to the other three subjects, students have less inclination toward 'Achieving' in Corporate Governance, practice more 'Unrelated memorising'

and have a stronger 'Lack of Purpose'. However, these results are still subject to inter-subject statistical analysis as discussed in the sections that follow and remain undermined by the results of the confirmatory factor analysis.

Question 2: Are the approaches to learning tendencies of the students consistent across the four core subjects within the PGDA, or are there contextual differences?

The above analysis confirmed statistically significant differences between the three main approaches and their related subscales for each of the four core subjects. High-level review of the medians per Table 4.2.2 above also seem to indicate differences between the four subjects for each of the main scales and related subscales – in other words the students sampled appear to exhibit different tendencies based on differing context.

To test these differences statistically, once again related-sample Friedman's Two-way ANOVA with Pairwise Comparison was implemented with a similar Bonferroni adjustment. The following null hypothesis is tested:

Null Hypothesis: The distributions of each main scale or subscale are the same for FR, MAF, TAX and CG.

Results are presented in Table 7.2 of Appendix 7. Analysing the main scales indicate no statistically significant difference between Deep (and Surface) distributions for the three subjects of Financial Reporting, Managerial Accounting & Finance and Taxation. A statistically significant result was obtained for the distributions of the Strategic approach between Financial Reporting and Managerial Accounting and Finance. Corporate Governance distributions for all three approaches were statistically significantly different from the other three subjects.

In analysing the differences between the subscales, the only exceptions to the above results worthy of specific mention are the statistically significant differences in responses to the 'Organised Studying' and 'Time Management' subscales between Financial Reporting and Management Accounting and Finance. It appears students find it easier to organise their studying and manage their time more effectively for Financial Reporting than for Managerial Accounting and Finance. This could be largely due to the differences in the nature of the topics: Financial Reporting focuses on teaching and examining International Financial Reporting Standards (IFRS) contained in SAICA-issued handbooks that students may make use of in examinations; Management Accounting and Finance focuses on teaching and examining business and finance principles for which there exists no handbook (or at least none that may be used in SAICA examinations nor with such prescriptive detail as the IFRS). The prescriptive detail of IFRS yields relatively structured numerical calculations and

reporting disclosures. Managerial Accounting and Finance numerical calculations and reports are less standardised in terms of format.

In conclusion, and on the whole, it would appear that while students do adopt a predominantly Strategic approach to learning and avoid using a Surface approach, this does not differ significantly between subjects barring the results for Corporate Governance.

Question 3: Do the approaches to learning tendencies exhibited by students differ depending on the academic achievement based on self-reported mark category for each of the four core subjects of the PGDA?

The focus of testing for this research question is to analyse each subject individually and test for statistically significant difference between response distributions of students in each mark category.

The following null hypothesis was tested:

Null Hypothesis: The distribution for each main scale and each subscale is the same across all categories of marks (done on a 'per subject' basis).

Where previously statistical testing revolved around related sampling techniques – comparing whether the responses of individual respondents differed from one section of their survey to another (comparing each of the three approaches or each of the different subjects) – analysing responses across different mark categories requires breaking the population up into sub-populations and comparing the sub-population responses to one another – an independent sampling technique. This testing must be premised with the caveat that breaking the main sample into sub-populations may result in extremely small sample sizes for certain mark categories. This reduces the power of the statistical testing but does not invalidate it.

Kruskal-Wallis tests were performed for each of the main scales and each of the subscales per subject. Results presented in Table 7.3 of Appendix 7 indicate that there is no statistically significant difference between the distributions for the Deep approach across the nine mark categories. This result has both positive and negative interpretations. The positive aspect is that irrespective of academic performance, the respondents all perceived a similar strength in tendency toward the Deep approach even at a subscale level. The only subscale proving to be statistically significantly different was the 'Seeking Meaning' subscale for Taxation, although no discernible pattern of responses could be gleaned (refer Graph 7.1 in Appendix 7). The negative interpretation of this result is that students may be practicing a Deep approach to learning but are not achieving better academic results. Having said this, academic results in isolation are not necessarily a clear representation of level of understanding as there are a number of factors that can bias academic results (such as time pressure and student reading and writing speeds).

The Strategic approach (for all but Corporate Governance) and Surface approach (for all but Taxation) exhibit statistically significant differences in distribution across the nine mark categories. The subscales causing major differences include 'Time Management' and 'Achieving' for Strategic approach, and 'Syllabus Boundness' and 'Fear of Failure' for Surface approach. Based on the box-and-whisker plots as presented in Graphs 7.2 to 7.14 of Appendix 7, expected patterns of responses can be gleaned.

Students achieving higher grades, according to the categories disclosed, were better able to manage their time (except in Corporate Governance) and also had stronger tendencies to achieve (except in Corporate Governance). Such students also reported greater 'Monitoring Effectiveness'. Based on these results, students underperforming academically had stronger tendencies toward 'Fear of Failure' and therefore exhibited more 'Syllabus Boundness' in their responses. These responses are understandable: Academically stronger students are expected to be more proficient at time management and are largely the students striving to achieve; weaker students fear failure (especially at the final hurdle before entering the professional environment) and therefore remain bound to the syllabus. Exact reasons for inconsistencies between the subjects is worthy of further investigation in future research.

Question 4: Do male and female students differ in their approaches to learning tendencies for each of the four core subjects of the PGDA?

Similar to research question 3, the null hypothesis to test differences in approaches to learning according to gender was as follows:

Null Hypothesis: The distribution for each main scale and each subscale is the same across all categories of marks (done on a 'per subject' basis).

The results of testing are presented in Table 7.4 of Appendix 7. Medians were calculated for both gender groups for each of the main scales and each of the subscales for each subject (refer Table 4.2.3 below). Kruskal-Wallis tests for statistically significant differences in distributions were performed and, where significant, highlighted in blue where males scored stronger (in other words scored lower) and in pink where females scored stronger (Table 7.5).

Table 4.2.3: Median scores for each gender per subject

Approach	Subscale	FR		MAF		TAX		CG	
		Male	Female	Male	Female	Male	Female	Male	Female
Deep Approach	Seeking Meaning	9	10	9	10	10	10	10	12
	Relating Ideas	9	11	10	11	10	11	12	11
	Use of Evidence	8	8	8	8	8	8	10	10
	Interest in Ideas	10	9	9	9	9	10	14	15
Strategic Approach	Organised Studying	9	9	10	9	9	9	12	12
	Time Management	7	6	8	7	7	7	13	13
	Alertness to Assessment Demands	9	10	9	10	9	10	9	11
	Achieving	7	7	8	7	7	7	10	10
	Monitoring Effectiveness	9	9	10	10	10	10	11	10
Surface Approach	Lack of Purpose	17	17	16	17	18	17	14	15
	Unrelated Memorising	14	15	14	15	13	15	11	12
	Syllabus Boundness	9	12	9	12	9	12	7	11
	Fear of Failure	9	8	10	8	10	9	13	10

Results presented interesting combinations. For example, in Corporate Governance, males scored stronger in 'Seeking Meaning' but also scored stronger in 'Unrelated Memorising' and 'Syllabus Boundness'. This appeared to be the only subject with such a contradiction although, by visual inspection of the medians, there appears to be a consistent theme across all four subjects despite not being statistically significant in the remaining three. Males did score stronger at 'Relating Ideas' for the remaining three subjects although once again reported stronger tendencies to 'Unrelated Memorising' and 'Syllabus Boundness' for all but Management Accounting and Finance. Females perceived stronger time management in Financial Reporting and Managerial Accounting and Finance as well as stronger 'Achieving' scale for Financial Reporting. This could be due to females feeling the need to 'get ahead' in a male dominated environment, as alluded to by Flood and Wilson (2008). While females may have stronger tendencies toward achievement to overcome the historical oppression of women, consideration must also be given to the possibility of potential response bias based on gender (Willows, 2012; Willows & West, 2012; de Lange & Mavondo, 2004). Responses to the ASSIST inventory statements amount to perceptions, and gender bias may influence the strength to which respondents agree or disagree with these statements.

In conclusion, while these statistical tests do yield statistically significant differences in responses for both the main scales and subscales, due to the lack of consistency (other than the male tendencies toward memorisation and being syllabus-bound), there is no compelling evidence that one gender practices a different approach to learning to the other.

Chapter 5: Conclusion and areas for further research

5.1 Conclusions based on the results of this study

This study set out to delve into the education of PGDA students as an investigation of perceived differences in the manner in which students approached different subjects. In the process, confirmation of the applicability of the ASSIST survey in the University of Cape Town accounting education environment was obtained. Inconsistencies in the confirmatory factor analysis results for Corporate Governance are worthy of further research. There remains the possibility of such inconsistencies being due to differences in respondents' perceptions of the learning environment specifically with regards this subject, or indeed a result of response bias – respondents feeling the need to differentiate their answer to Corporate Governance from the remaining three subjects.

With the results of the factor analysis in mind, this research paper has established that the PGDA students sampled did in fact have strong tendencies toward Deep learning and weak tendencies toward Surface learning with the Strategic approach proving to be the dominant approach. Such results are in line with the recommendations of the IFAC International Education Standards and good news for accounting academics. Subscales receiving strong responses within the three approaches include 'Seeking Meaning', 'Use of Evidence', 'Syllabus Boundness' and 'Fear of Failure'. 'Interest in Ideas' received relatively weak responses and had the widest dispersion compared to the other Deep subscales. These results are consistent with the researcher's understanding of the PGDA learning environment: Students are exposed to a high volume of technically complex work, examined under time pressure by means of rigorous mini-case-studies and all at the exit point from tertiary education, immediately prior to entrance to professional training and assessment. At this stage in the students' careers, they fear failure that would prolong entry to the profession. The volume of work, level of complexity and time pressure add to this fear resulting in students focussing on the content to be examined. The aforementioned results are consistent with those of Flood and Wilson (2008) who also cited high volume and time pressure as contributing factors to their results.

Results regarding contextual difference in approaches to learning between the four core subjects of the PGDA were less definitive. There was no statistically significant evidence to suggest major difference between the approaches to learning for Financial Reporting, Management Accounting and Finance and Taxation. While there was observed statistically significant differences between each of these subjects and Corporate Governance at both a main scale and subscale level, the aforementioned argument regarding the possible dissonance or response bias applies. Differences in perceptions of the learning environment between subjects remains an area for further research, but

the balance of results indicate no significant difference between approaches to learning for each subject, barring the results for Corporate Governance.

Academic achievement exhibited a number of curious results. It was established that there was no difference in perceived tendencies toward a Deep Approach for academically stronger or weaker students. Major differences between students of varying academic achievement included academically stronger students feeling more comfortable managing their time (and want to achieve) while weaker students felt a greater fear of failure and therefore the need to restrict themselves to learning within the confines of the syllabus. This consistency of perception toward the Deep approach is encouraging, although further research could include delving deeper into the different levels of understanding experienced by students.

Finally, there appears to be no concrete evidence that the different genders practice differing approaches to learning. In contrast to the research by Flood and Wilson (2008), females were not found to exhibit a greater fear of failure but males were in fact found to show stronger tendencies toward unrelated memorising and being bound to the confines of the syllabus.

5.2 Areas for further research

This study serves as a preliminary investigation into the approaches to learning of PGDA students at the University of Cape Town (UCT). While this research offers useful insights to accounting educators at UCT, it also provides insights into accounting students on the brink of entering the profession of chartered accountancy in South Africa. However, the sample of students tested in this study form a very small and specific portion of South African accounting students. Many students embark on the journey to qualify as a CA(SA) but few make it as far as PGDA-equivalent level. Furthermore, academic staffs across universities believe that the cohorts of student may differ from one university to the next. This may be due to differing learning environments or student-specific factors. There is therefore a multitude of further research that can be undertaken:

1. Replication of this study in the same context (within the cohort of PGDA students) with a greater sample size. Larger sample sizes allow for more accurate statistical analysis of differences in responses between sub-populations – for example gender or ethnicity. The inherent limitation of this research is the restrictive sample size making comparisons of approaches to learning across gender, historical university performance, schooling background, cultural background and other demographics unreliable. Phenomenographic research including follow-up interviews with both staff and students can be used to link conceptions of learning and teaching (Byrne & Flood, 2003) with approaches to learning. The use of interviews may also help gain insights into student perceptions of the learning

environment, a factor that can prove problematic when evaluating approaches to learning and the link to academic success (Entwistle, Meyer & Tait, 1991).

2. Replication of this study in a longitudinal fashion: measuring student approaches to learning over time. Such studies have been performed by Ballantine, Duff and Larres (2008) and Hall, Ramsay and Raven (2004) but generally focussed around educators changing the learning environment and measuring changes in approach for the given change in learning environment. This style of study is useful for teaching interventions, but simply measuring changes in student approaches to learning over time (as a student progresses from first year undergraduate to final year postgraduate within the SAICA accredited streams) also holds value. Studies comparing results of students at various points in their education and the development or changes over time may yield insight into the effectiveness of UCT accounting education in developing students over time as well as potential changes in the learning environment to which students responded positively.
3. Replication of this study, as well as the longitudinal studies and interviews mentioned above, across different universities both nationally and internationally with various student samples (undergraduate and postgraduate students as well as accredited and non-accredited programmes). The results of such studies can once again assist in the identification of learning environment attributes, over which accounting educators have influence, that can be used to positively influence students' approaches to learning.
4. Linking this research as well as the further research as mentioned above to other subsections of the education literature such as the work of Baxter Magolda into the 'levels of reflective thinking' (Lucas 2008) and the works of Meyer (2000) and Entwistle *et al.* (1991) into dissonant patterns of responses.

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APPENDIXES

Appendix 1: ASSIST survey as completed by students

Approaches to Study Skills Inventory for Students (ASSIST)	
A	Agree
B	Agree Somewhat
C	Try not to use C = unsure, unless you really have to, or if it cannot apply to you or your course.
D	Disagree Somewhat
E	Disagree
#	Statement
1	I manage to find conditions for studying which allow me to get on with my work for this course easily.
2	When answering a test or exam question, or assignment or essay, I'm keeping in mind how best to impress the marker.
3	Often I find myself wondering whether the work I am doing in this course is really worthwhile.
4	I usually set out to understand for myself the meaning of what we have to learn.
5	I organise my study time for this course carefully to make the best use of it.
6	I find I have to concentrate on just memorising a good deal of what I have to learn.
7	I go over the work I've done carefully to check the reasoning and that it makes sense.
8	Often I feel I'm drowning in the sheer amount of material we're having to cope with.
9	I look at the evidence carefully and try to reach my own conclusion about what I'm studying.
10	It's important for me to feel that I'm doing as well as I really can on the course.
11	I try to relate ideas I come across to those in other topics or other courses whenever possible.
12	I tend to read very little beyond what is actually required to pass.
13	Regularly I find myself thinking about ideas from lectures when I'm doing other things.
14	I think I'm quite systematic and organised when it comes to revising for exams.
15	I look carefully at markers' comments to tests and on my script to see how to get higher marks next time.
16	There's not much of the work in this course that I find interesting or relevant.
17	When I read an article or book or course module, I try to find out for myself exactly what the author means.
18	I'm pretty good at getting down to work whenever I need to for this course.
19	Much of what I'm studying makes little sense: it's like unrelated bits and pieces.
20	I think about what I want to get out of this course to keep my studying well focused.
21	When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.
22	I often worry about whether I'll ever be able to cope with the work properly.
23	Often I find myself questioning things I hear in lectures or tuts, or read in suggested solutions or textbooks.
24	I feel that I'm getting on well, and this helps me put more effort into the work.
25	I concentrate on learning just those bits of information I have to know to pass.
26	I find that studying topics covered in this course can be quite exciting at times.
27	I'm good at following up some of the reading suggested by lecturers or tutors.
28	I keep in mind who is going to mark a test and what they're likely to be looking for.
29	When I look back, I sometimes wonder why I ever decided to come here.
30	When I am doing tuts or reading, I stop from time to time to reflect on what I am trying to learn from it.
31	I work steadily through the term or semester, rather than leave it all until the last minute.
32	I'm not really sure what's important in lectures so I try to get down all I can.
33	Ideas in course notes or articles often set me off on long chains of thought of my own.
34	Before starting work on a test question, I think first how best to tackle it.
35	I often seem to panic if I get behind with my work for this course.
36	When I do tutorials or read, I examine the details carefully to see how they fit in with what's being said.
37	I put a lot of effort into studying because I'm determined to do well in this course.
38	I gear my studying closely to just what seems to be required for tests and exams.
39	Some of the ideas I come across on the course I find really gripping.
40	I usually plan out my week's work in advance, either on paper or in my head.

41	I keep an eye open for what lecturers seem to think is important and concentrate on that.
42	I'm not really interested in this course, but I have to take it for other reasons.
43	When answering test / exam questions, before tackling a problem or question, I first try to work out what lies behind it.
44	I generally make good use of my time during the day, for this course.
45	I often have trouble in making sense of the things I have to remember.
46	I like to play around with ideas of my own even if they don't get me very far.
47	When I finish a piece of work, I check it through to see if it really meets the requirements.
48	Often I lie awake worrying about work I think I won't be able to do for this course.
49	It's important for me to be able to follow the argument, or to see the reason behind things.
50	I don't find it at all difficult to motivate myself for this course.
51	I like to be told precisely what to do in answering questions.
52	I sometimes get 'hooked' on academic topics and feel I would like to continue studying them in the future.

Appendix 2: ASSIST questions grouped according to their subscales

Deep Approach

Seeking Meaning

4	I usually set out to understand for myself the meaning of what we have to learn.
17	When I read an article or book or course module, I try to find out for myself exactly what the author means.
30	When I am doing tuts or reading, I stop from time to time to reflect on what I am trying to learn from it.
43	When doing tutorials, before tackling a problem or question (i.e. "Required"), I first try to work out what lies behind it.

Relating Ideas

11	I try to relate ideas I come across to those in other topics or other courses whenever possible.
21	When I'm working on a new topic, I try to see in my own mind how all the ideas fit together.
33	Ideas in course notes or articles often set me off on long chains of thought of my own.
46	I like to play around with ideas of my own even if they don't get me very far.

Use of Evidence

9	I look at the evidence carefully and try to reach my own conclusion about what I'm studying.
23	Often I find myself questioning things I hear in lectures or tuts, or read in suggested solutions or textbooks.
36	When I do tutorials or read, I examine the details carefully to see how they fit in with what's being said.
49	It's important for me to be able to follow the argument, or to see the reason behind things.

Interest in Ideas

13	Regularly I find myself thinking about ideas from lectures when I'm doing other things.
26	I find that studying topics covered in this course can be quite exciting at times.
39	Some of the ideas I come across on the course I find really gripping.
52	I sometimes get 'hooked' on academic topics and feel I would like to continue studying them in the future.

Strategic Approach

Organised Studying

1	I manage to find conditions for studying which allow me to get on with my work for this course easily.
14	I think I'm quite systematic and organised when it comes to revising for exams.
27	I'm good at following up some of the reading suggested by lecturers or tutors.
40	I usually plan out my week's work in advance, either on paper or in my head.

Time Management

5	I organise my study time for this course carefully to make the best use of it.
18	I'm pretty good at getting down to work whenever I need to for this course.
31	I work steadily through the term or semester, rather than leave it all until the last minute.
44	I generally make good use of my time during the day, for this course.

Alertness to Assessment Demands

2	When answering a test or exam question, or assignment or essay, I'm keeping in mind how best to impress the marker.
15	I look carefully at markers' comments to tests and on my script to see how to get higher marks next time.
28	I keep in mind who is going to mark a test and what they're likely to be looking for.
41	I keep an eye open for what lecturers seem to think is important and concentrate on that.

Achieving

10	It's important for me to feel that I'm doing as well as I really can on the course.
24	I feel that I'm getting on well, and this helps me put more effort into the work.
37	I put a lot of effort into studying because I'm determined to do well in this course.
50	I don't find it at all difficult to motivate myself for this course.

Monitoring Effectiveness

7	I go over the work I've done carefully to check the reasoning and that it makes sense.
20	I think about what I want to get out of this course to keep my studying well focused.
34	Before starting work on a tutorial question, I think first how best to tackle it.
47	When I finish a piece of work, I check it through to see if it really meets the requirements.

Surface Apathetic Approach**Lack of Purpose**

3	Often I find myself wondering whether the work I am doing in this course is really worthwhile.
16	There's not much of the work in this course that I find interesting or relevant.
29	When I look back, I sometimes wonder why I ever decided to come here.
42	I'm not really interested in this course, but I have to take it for other reasons.

Unrelated Memorising

6	I find I have to concentrate on just memorising a good deal of what I have to learn.
19	Much of what I'm studying makes little sense: it's like unrelated bits and pieces.
32	I'm not really sure what's important in lectures so I try to get down all I can.
45	I often have trouble in making sense of the things I have to remember.

Syllabus-Boundness

12	I tend to read very little beyond what is actually required to pass.
25	I concentrate on learning just those bits of information I have to know to pass.
38	I gear my studying closely to just what seems to be required for tests and exams.
51	I like to be told precisely what to do in answering questions.

Fear of Failure

8	Often I feel I'm drowning in the sheer amount of material we're having to cope with.
22	I often worry about whether I'll ever be able to cope with the work properly.
35	I often seem to panic if I get behind with my work for this course.
48	Often I lie awake worrying about work I think I won't be able to do for this course.

Appendix 3: Tests of sampling adequacy

Table 3.1: KMO and Bartlett's tests for Financial Reporting

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.732
Bartlett's Test of Sphericity	Approx. Chi-Square	273.982
	df	78
	Sig.	.000

Table 3.2: KMO and Bartlett's tests for Managerial Accounting and Finance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.652
Bartlett's Test of Sphericity	Approx. Chi-Square	311.662
	df	78
	Sig.	.000

Table 3.3: KMO and Bartlett's tests for Taxation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.705
Bartlett's Test of Sphericity	Approx. Chi-Square	274.474
	df	78
	Sig.	.000

Table 3.4: KMO and Bartlett's tests for Corporate Governance

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	290.594
	df	78
	Sig.	.000

Appendix 4: Factor analysis

Table 4.1: Goodness-of-fit test results

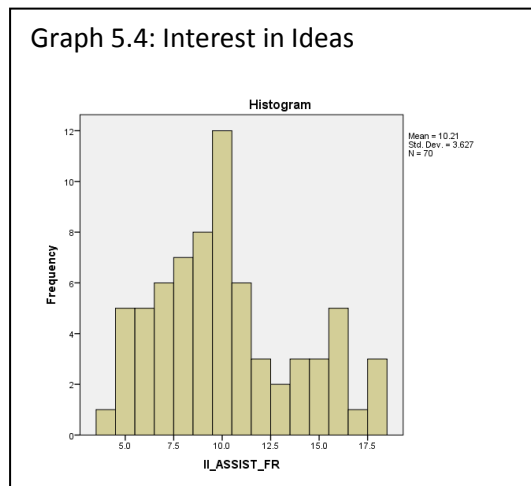
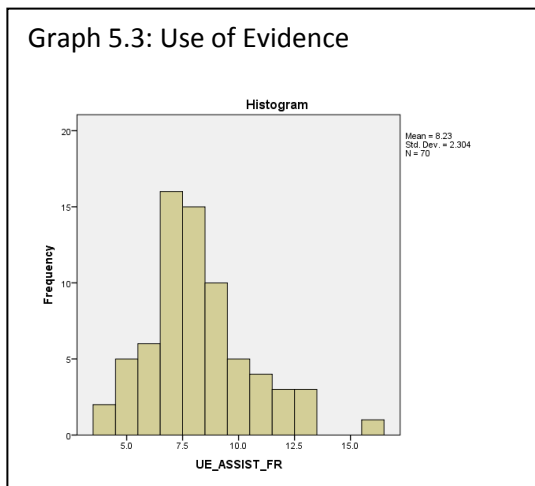
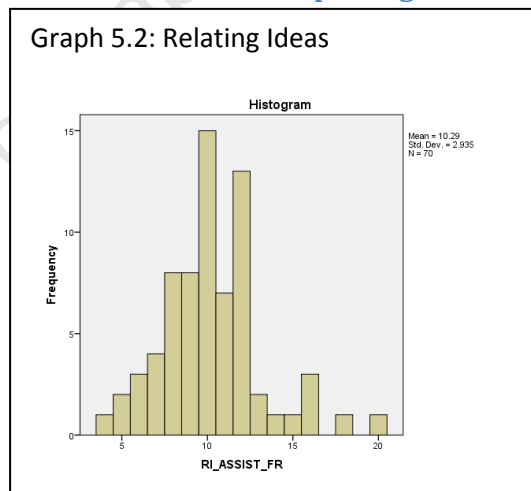
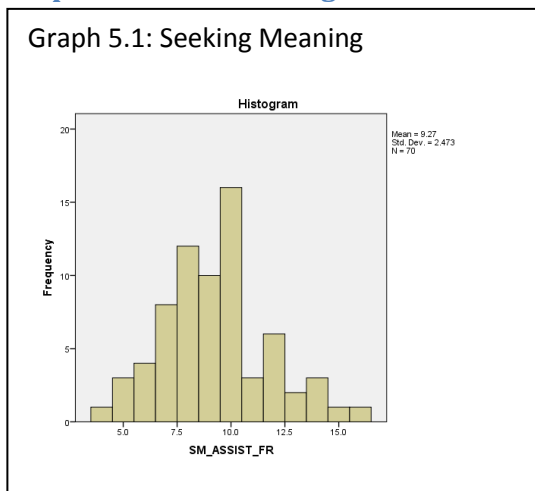
	Chi-Square	df	Sig.
Financial Reporting	37.669	42	.661
Managerial Accounting and Finance	56.024	42	.072
Taxation	49.126	42	.209
Corporate Governance	49.781	42	.191

Appendix 5: Test of Normality

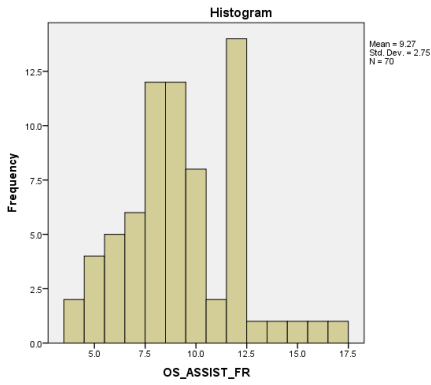
Table 5.1: Tests of normality for Financial Reporting subscales

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Seeking Meaning	.156	70	.000	.969	70	.084
Relating Ideas	.151	70	.000	.952	70	.009
Use of Evidence	.168	70	.000	.944	70	.003
Interest in Ideas	.152	70	.000	.947	70	.005
Organised Studying	.125	70	.009	.965	70	.045
Time Management	.159	70	.000	.849	70	.000
Alertness to Assessment Demands	.114	70	.025	.968	70	.075
Achieving	.169	70	.000	.885	70	.000
Monitoring Effectiveness	.139	70	.002	.946	70	.004
Lack of Purpose	.139	70	.002	.910	70	.000
Unrelated Memorising	.139	70	.002	.961	70	.028
Syllabus Boundness	.102	70	.070	.978	70	.258
Fear of Failure	.125	70	.009	.928	70	.001

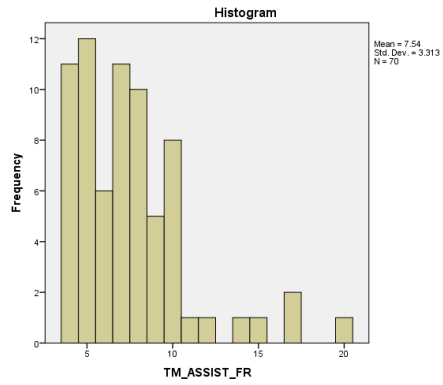
Graphs 5.1 – 5.13: Histograms of the distributions of Financial Reporting subscales



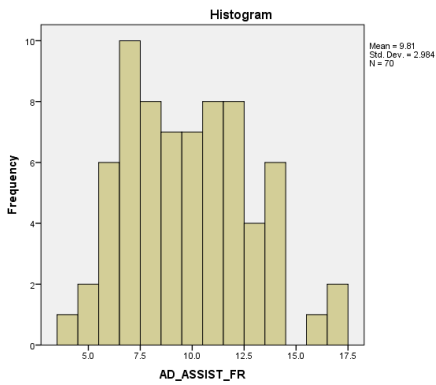
Graph 5.5: Organised Studying



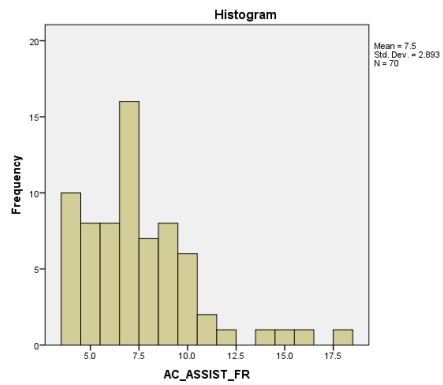
Graph 5.6: Time Management



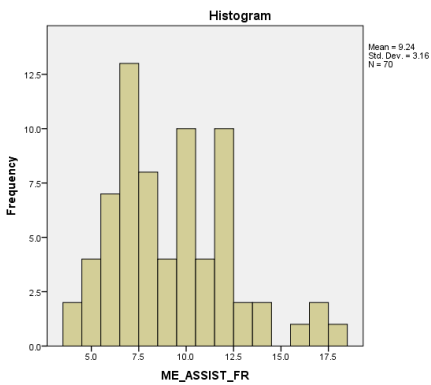
Graph 5.7: Alertness to Assessment



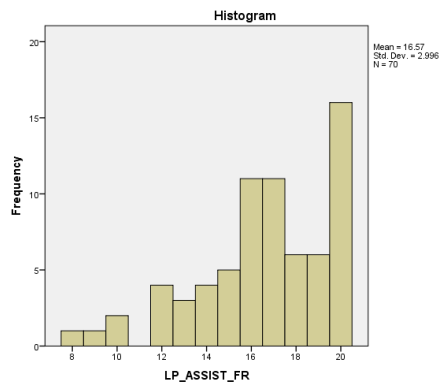
Graph 5.8: Achieving



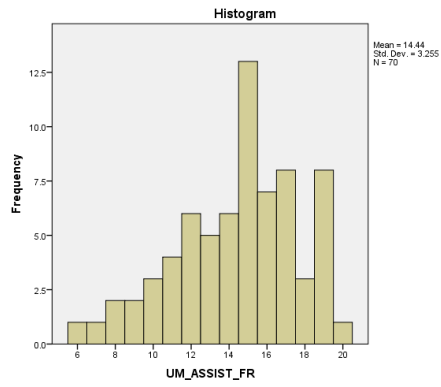
Graph 5.9: Monitoring Effectiveness



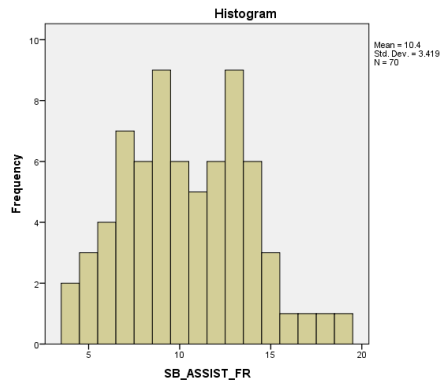
Graph 5.10: Lack of Purpose



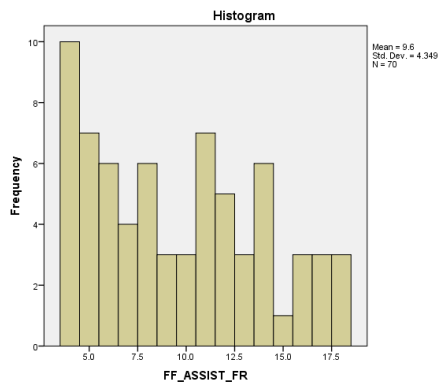
Graph 5.11: Unrelated Memorising



Graph 5.12: Syllabus Boundness



Graph 5.13: Fear of Failure



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Appendix 6: Means and Standard Deviations of main and subscales

Table 6.1: Mean values of main and subscales

	FR	MAF	TAX	CG
Deep Approach	38.07	38.14	40.21	47.25
Strategic Approach	34.82	37.25	36.29	45.66
Surface Approach	50.66	49.32	50.22	46.26
Deep Approach Subscales				
Seeking Meaning	9.37	9.48	10.07	10.89
Relating Ideas	10.32	10.53	11.10	12.04
Use of Evidence	8.36	8.64	9.04	10.65
Interest in Ideas	10.25	9.78	10.16	13.89
Strategic Approach Subscales				
Organised Studying	9.36	10.23	9.72	11.97
Time Management	7.53	8.64	8.09	12.80
Alertness to Assessment Demands	9.97	10.01	10.11	10.62
Achieving	7.60	8.27	7.91	10.92
Monitoring Effectiveness	9.18	9.58	9.58	10.92
Surface Approach Subscales				
Lack of Purpose	16.49	16.12	16.36	13.91
Unrelated Memorising	14.44	13.72	13.51	11.84
Syllabus Boundness	10.32	10.01	10.11	8.49
Fear of Failure	9.43	9.50	10.17	12.14

Table 6.2: Standard deviation of main and subscales

	FR	MAF	TAX	CG
Deep Approach	8.55	9.18	9.58	10.02
Strategic Approach	8.49	8.80	8.43	9.22
Surface Approach	9.72	10.20	9.83	8.95
Deep Approach Subscales				
Seeking Meaning	2.46	2.66	3.01	3.04
Relating Ideas	2.90	3.18	3.28	3.19
Use of Evidence	2.36	2.50	2.57	3.10
Interest in Ideas	3.75	3.77	3.96	3.91
Strategic Approach Subscales				
Organised Studying	2.72	2.89	2.86	3.15
Time Management	3.23	3.61	3.23	3.99
Alertness to Assessment Demands	3.15	3.16	3.12	2.94
Achieving	3.00	3.12	3.03	3.47
Monitoring Effectiveness	3.10	3.13	3.19	3.28
Surface Approach Subscales				
Lack of Purpose	3.13	3.59	3.31	3.76
Unrelated Memorising	3.33	3.47	3.48	3.23
Syllabus Boundness	3.35	3.22	3.39	3.31
Fear of Failure	4.32	4.35	4.21	4.03

Appendix 7: Tests of significance

Table 7.1: Friedman's Two-way ANOVA testing each of the approaches

Category	Related Samples Friedman's Two-Way Analysis of Variance by Ranks					Pairwise Comparison		
	Null Hypothesis	N	Test Stat	Sig*.	Decision	Sample1-Sample2	Adj Sig**	Decision
Financial Reporting	The distributions for Deep, Surface and Strategic Approaches are the same	70	62.616	.000	Reject the Null Hypothesis	ST-DA ST-SA DA-SA	.156 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Managerial Accounting and Finance	The distributions for Deep, Surface and Strategic Approaches are the same	70	34.412	.000	Reject the Null Hypothesis	ST-DA ST-SA DA-SA	1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Taxation	The distributions for Deep, Surface and Strategic Approaches are the same	67	40.925	.000	Reject the Null Hypothesis	ST-DA ST-SA DA-SA	.252 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Corporate Governance	The distributions for Deep, Surface and Strategic Approaches are the same	67	5.427	.066	Cannot Reject the Null Hypothesis			No Pairwise Comparisons done

Financial Reporting	The distributions for Seeking Meaning, Relating Ideas, Use of Evidence and Interest in Ideas are the same	72	28.477	.000	Reject the Null Hypothesis	SM-RI SM-UE SM-II RI-UE RI-II UE-II	.085 .111 1.000 .000 1.000 .001	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Financial Reporting	The distributions for Organised Studying, Time Management, Alertness to Assessment Demands, Achieving and Monitoring Effectiveness are the same	73	57.504	.000	Reject the Null Hypothesis	OS-TM OS-AD OS-AC OS-ME TM-AD TM-AC TM-ME AD-AC AD-ME AC-ME	.000 1.000 .000 1.000 .000 1.000 .000 .000 1.000 .001	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Financial Reporting	The distributions for Lack of Purpose, Unrelated Memorising, Syllabus Boundness and Fear of Failure are the same	73	121.438	.000	Reject the Null Hypothesis	LP-UM LP-SB LP-FF UM-SB UM-FF SB-FF	.039 .000 .000 .000 .000 1.000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Managerial	The distributions	72	26.123	.000	Reject the	SM-RI	.049	Reject the Null

Accounting and Finance	for Seeking Meaning, Relating Ideas, Use of Evidence and Interest in Ideas are the same				Null Hypothesis	SM-UE SM-II RI-UE RI-II UE-II	.156 1.000 .000 .030 .233	Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Managerial Accounting and Finance	The distributions for Organised Studying, Time Management, Alertness to Assessment Demands, Achieving and Monitoring Effectiveness are the same	73	35.119	.000	Reject the Null Hypothesis	OS-TM OS-AD OS-AC OS-ME TM-AD TM-AC TM-ME AD-AC AD-ME AC-ME	.002 1.000 .000 1.000 .026 1.000 .111 .001 1.000 .006	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Managerial Accounting and Finance	The distributions for Lack of Purpose, Unrelated Memorising, Syllabus Boundness and Fear of Failure are the same	73	112.568	.000	Reject the Null Hypothesis	LP-UM LP-SB LP-FF UM-SB UM-FF SB-FF	.007 .000 .000 .000 .000 1.000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Taxation	The distributions for Seeking Meaning, Relating Ideas, Use of Evidence and Interest in Ideas are the same	71	21.287	.000	Reject the Null Hypothesis	SM-RI SM-UE SM-II RI-UE RI-II UE-II	.061 .510 1.000 .000 .015 1.000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Taxation	The distributions for Organised Studying, Time Management, Alertness to Assessment Demands, Achieving and Monitoring Effectiveness are the same	71	42.603	.000	Reject the Null Hypothesis	OS-TM OS-AD OS-AC OS-ME TM-AD TM-AC TM-ME AD-AC AD-ME AC-ME	.002 1.000 .000 1.000 .001 1.000 .013 .000 1.000 .001	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Taxation	The distributions for Lack of Purpose, Unrelated Memorising, Syllabus Boundness and Fear of Failure are the same	72	96.951	.000	Reject the Null Hypothesis	LP-UM LP-SB LP-FF UM-SB UM-FF SB-FF	.001 .000 .000 .000 .000 1.000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Corporate Governance	The distributions for Seeking Meaning, Relating Ideas, Use of Evidence and Interest in Ideas are the same	71	40.297	.000	Reject the Null Hypothesis	SM-RI SM-UE SM-II RI-UE RI-II UE-II	.023 1.000 .000 .009 .244 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Corporate	The distributions	71	24.886	.000	Reject the	OS-TM	.845	Reject the Null

Governance	for Organised Studying, Time Management, Alertness to Assessment Demands, Achieving and Monitoring Effectiveness are the same				Null Hypothesis	OS-AD OS-AC OS-ME TM-AD TM-AC TM-ME AD-AC AD-ME AC-ME	.195 .496 .711 .000 .002 .004 1.000 1.000 1.000	Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Corporate Governance	The distributions for Lack of Purpose, Unrelated Memorising, Syllabus Boundness and Fear of Failure are the same	73	66.195	.000	Reject the Null Hypothesis	LP-UM LP-SB LP-FF UM-SB UM-FF SB-FF	.021 .000 .035 .000 1.000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly

Table 7.2: Friedman's Two-way ANOVA testing each scale and subscale across subjects

		Related Samples Friedman's Two-Way Analysis of Variance by Ranks				Pairwise Comparison		
Category	Null Hypothesis	N	Test Stat	Sig*.	Decision	Sample1-Sample2	Adj Sig**	Decision
Deep Approach	The distributions of Deep Approach for FR, MAF, TAX and CG are the same	71	82.490	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 .443 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Strategic Approach	The distributions of Strategic Approach for FR, MAF, TAX and CG are the same	69	108.913	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.045 .681 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Surface Apathetic Approach	The distributions of Surface Apathetic Approach for FR, MAF, TAX and CG are the same	71	22.659	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.916 1.000 .000 1.000 .042 .003	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Seeking Meaning	The distributions of Seeking Meaning for FR, MAF, TAX and CG are the same	75	48.887	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 .258 .000 .459 .000 .068	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Relating Ideas	The distributions of Relating Ideas for FR, MAF, TAX and CG are the same	73	45.088	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX	1.000 .137 .000 .654	Reject the Null Hypothesis for the Shaded Pairs - the distributions

						MAF-CG TAX-CG	.000 .116	of these pairs differ significantly
Use of Evidence	The distributions of Use of Evidence for FR, MAF, TAX and CG are the same	74	67.468	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 .313 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Interest in Ideas	The distributions of Interest in Ideas for FR, MAF, TAX and CG are the same	73	78.488	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Organised Studying	The distributions of Organised Studying for FR, MAF, TAX and CG are the same	74	90.232	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.023 1.000 .000 .389 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Time Management	The distributions of Time Management for FR, MAF, TAX and CG are the same	74	134.245	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.013 .968 .000 .587 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Alertness to Assessment Demands	The distributions of Alertness to Assessment Demands for FR, MAF, TAX and CG are the same	73	17.811	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .074 1.000 .097 .352	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Achieving	The distributions of Achieving for FR, MAF, TAX and CG are the same	74	76.590	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.231 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Monitoring Effectiveness	The distributions of Monitoring Effectiveness for FR, MAF, TAX and CG are the same	74	64.594	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Lack of Purpose	The distributions of Lack of Purpose for FR, MAF, TAX and CG are the same	74	44.352	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly

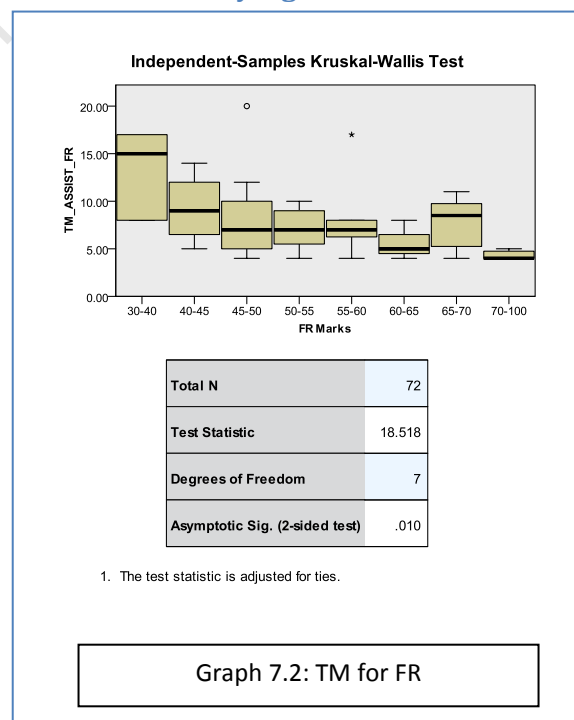
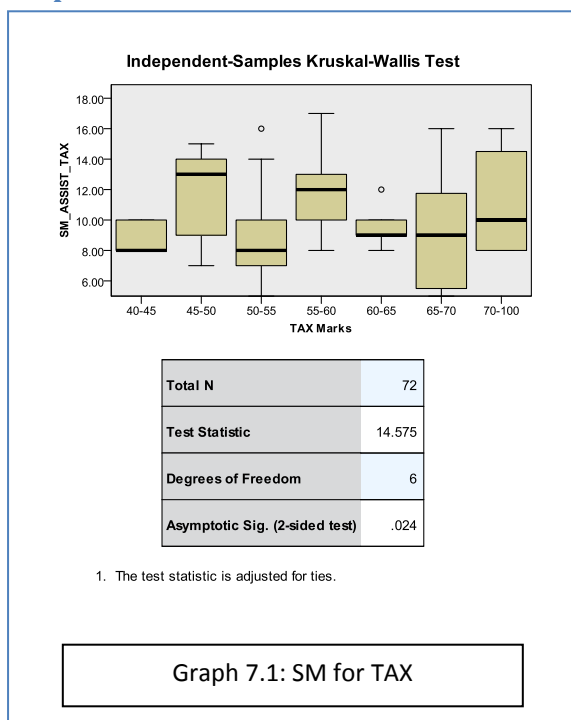
Unrelated Memorising	The distributions of Unrelated Memorising for FR, MAF, TAX and CG are the same	75	49.729	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	.322 .221 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Syllabus Boundness	The distributions of Syllabus Boundness for FR, MAF, TAX and CG are the same	73	59.946	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly
Fear of Failure	The distributions of Fear of Failure for FR, MAF, TAX and CG are the same	74	71.936	.000	Reject the Null Hypothesis	FR-MAF FR-TAX FR-CG MAF-TAX MAF-CG TAX-CG	1.000 1.000 .000 1.000 .000 .000	Reject the Null Hypothesis for the Shaded Pairs - the distributions of these pairs differ significantly

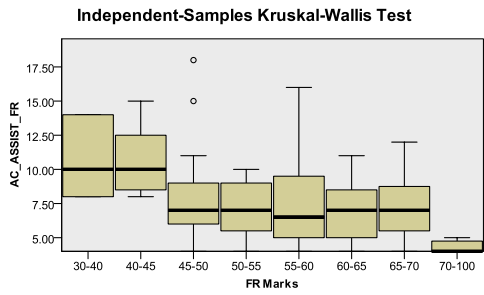
Table 7.3: Kruskal-Wallis tests across mark category for each subject

Independent Sample Kruskal-Wallis Test		FR	MAF	TAX	CG
Category	Null Hypothesis	Sig*.	Sig*.	Sig*.	Sig*.
Deep Approach	The distributions of Deep Approach is the same across all categories of marks	.481	.163	.147	.378
Strategic Approach	The distributions of Strategic Approach is the same across all categories of marks	.026	.049	.003	.184
Surface Apathetic Approach	The distributions of Surface Approach is the same across all categories of marks	.019	.036	.117	.022
Seeking Meaning	The distributions of Seeking Meaning is the same across all categories of marks	.334	.604	.024	.256
Relating Ideas	The distributions of Relating Ideas is the same across all categories of marks	.749	.066	.789	.727
Use of Evidence	The distributions of Use of Evidence is the same across all categories of marks	.586	.078	.120	.148
Interest in Ideas	The distributions of Interest in Ideas is the same across all categories of marks	.406	.570	.822	.572
Organised Studying	The distributions of Organised Studying is the same across all categories of marks	.078	.169	.093	.738
Time Management	The distributions of Time Management is the same across all categories of marks	.010	.021	.004	.109

Alertness to Assessment Demands	The distributions of Alertness to Assessment Demands is the same across all categories of marks	.607	.130	.090	.583
Achieving	The distributions of Achieving is the same across all categories of marks	.021	.032	.010	.193
Monitoring Effectiveness	The distributions of Monitoring Effectiveness is the same across all categories of marks	.029	.168	.099	.124
Lack of Purpose	The distributions of Lack of Purpose is the same across all categories of marks	.097	.336	.087	.258
Unrelated Memorising	The distributions of Unrelated Memorising is the same across all categories of marks	.050	.170	.437	.033
Syllabus Boundness	The distributions of Syllabus Boundness is the same across all categories of marks	.324	.045	.025	.019
Fear of Failure	The distributions of Fear of Failure is the same across all categories of marks	.036	.031	.904	.970

Graphs 7.1 - 7.14: Details of Kruskal-Wallis tests for statistically significant items

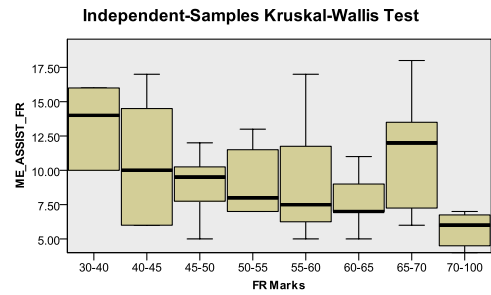




Total N	73
Test Statistic	16.497
Degrees of Freedom	7
Asymptotic Sig. (2-sided test)	.021

1. The test statistic is adjusted for ties.

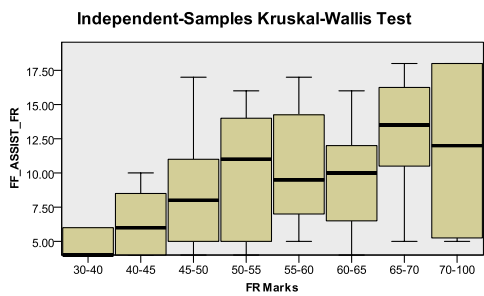
Graph 7.3: AC for FR



Total N	72
Test Statistic	15.632
Degrees of Freedom	7
Asymptotic Sig. (2-sided test)	.029

1. The test statistic is adjusted for ties.

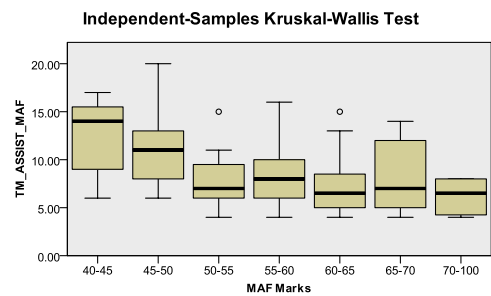
Graph 7.4: ME for FR



Total N	73
Test Statistic	14.986
Degrees of Freedom	7
Asymptotic Sig. (2-sided test)	.036

1. The test statistic is adjusted for ties.

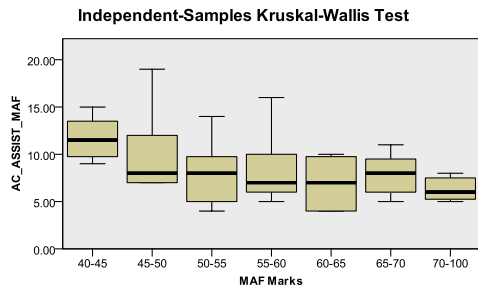
Graph 7.5: FF for FR



Total N	72
Test Statistic	14.959
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.021

1. The test statistic is adjusted for ties.

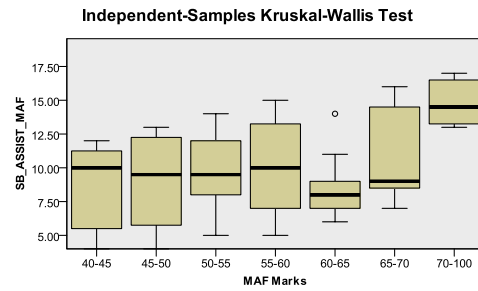
Graph 7.6: TM for MAF



Total N	72
Test Statistic	13.834
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.032

1. The test statistic is adjusted for ties.

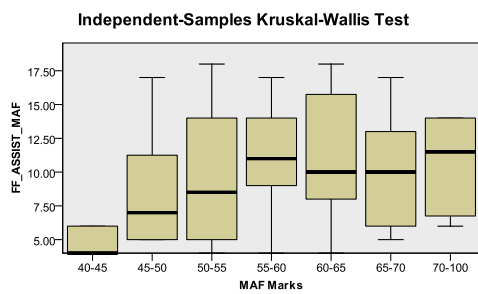
Graph 7.7: AC for MAF



Total N	71
Test Statistic	12.896
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.045

1. The test statistic is adjusted for ties.

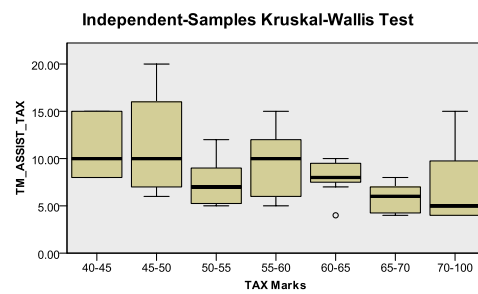
Graph 7.8: SB for MAF



Total N	72
Test Statistic	13.903
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.031

1. The test statistic is adjusted for ties.

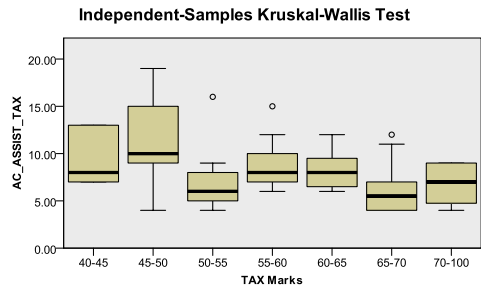
Graph 7.9: FF for MAF



Total N	72
Test Statistic	19.224
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.004

1. The test statistic is adjusted for ties.

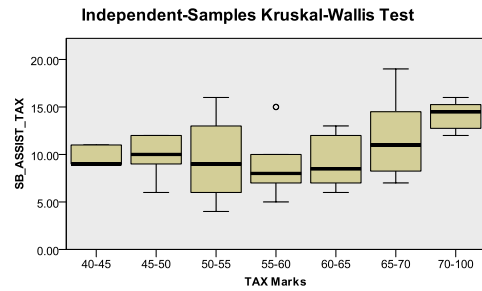
Graph 7.10: TM for TAX



Total N	71
Test Statistic	16.734
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.010

1. The test statistic is adjusted for ties.

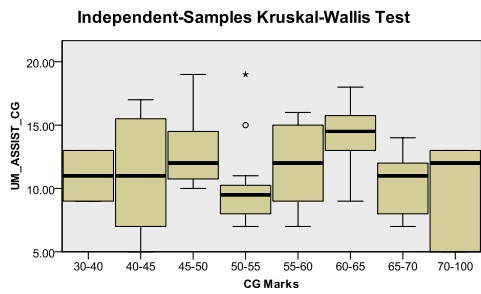
Graph 7.11: AC for TAX



Total N	70
Test Statistic	14.427
Degrees of Freedom	6
Asymptotic Sig. (2-sided test)	.025

1. The test statistic is adjusted for ties.

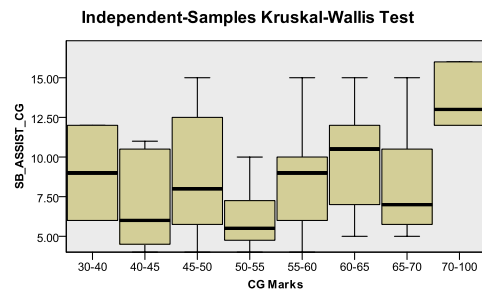
Graph 7.12: SB for TAX



Total N	72
Test Statistic	15.243
Degrees of Freedom	7
Asymptotic Sig. (2-sided test)	.033

1. The test statistic is adjusted for ties.

Graph 7.13: UM for CG



Total N	71
Test Statistic	16.810
Degrees of Freedom	7
Asymptotic Sig. (2-sided test)	.019

1. The test statistic is adjusted for ties.

Graph 7.14: SB for CG

Table 7.4: Mean scores for each subscale across gender for each subject

Approach	Subscale	FR		MAF		TAX		CG	
		Male	Female	Male	Female	Male	Female	Male	Female
Deep Approach	Seeking Meaning	9.119	9.531	9.024	9.906	9.619	10.531	10.190	11.688
	Relating Ideas	9.463	11.250	9.634	11.500	10.225	12.031	11.625	12.500
	Use of Evidence	8.286	8.419	8.333	8.935	9.190	8.871	10.214	11.194
	Interest in Ideas	10.381	9.800	9.595	9.833	9.762	10.633	13.548	14.233
Strategic Approach	Organised Studying	9.512	9.156	10.463	9.906	9.902	9.563	12.146	11.719
	Time Management	8.366	6.375	9.268	7.750	8.548	7.438	13.238	12.156
	Alertness to Assessment Demands	9.571	10.438	9.786	10.250	9.732	10.531	10.200	11.094
	Achieving	8.310	6.625	8.786	7.563	8.143	7.548	11.143	10.688
	Monitoring Effectiveness	9.561	8.594	9.927	9.063	9.756	9.375	10.927	10.906
Surface Approach	Lack of Purpose	15.929	17.281	15.476	17.000	16.476	16.226	13.310	14.656
	Unrelated Memorising	13.405	15.719	13.143	14.406	12.524	14.688	11.143	12.688
	Syllabus Boundness	9.357	11.645	9.143	11.194	9.119	11.433	7.714	9.516
	Fear of Failure	9.571	9.258	9.905	8.968	10.286	9.969	12.429	11.774

Table 7.5: Kruskal-Wallis test across gender for each subject

Independent Samples Kruskal-Wallis Test		FR	MAF	TAX	CG
Category	Null Hypothesis	Sig*.	Sig*.	Sig*.	Sig*.
Deep Approach	The distribution of Deep Approach is the same across genders	.143	.036	.070	.078
Strategic Approach	The distribution of Deep Approach is the same across genders	.293	.216	.767	.934
Surface Approach	The distribution of Deep Approach is the same across genders	.019	.156	.039	.079
Deep Approach	The distribution of Seeking Meaning is the same across genders	.578	.150	.187	.032
	The distribution of Relating Ideas is the same across genders	.002	.012	.030	.289
	The distribution of Use of Evidence is the same across genders	.883	.267	.603	.244
	The distribution of Interest in Ideas is the same across genders	.449	.731	.264	.671
Strategic Approach	The distribution of Organised Studying is the same across genders	.666	.466	.682	.639
	The distribution of Time Management is the same across genders	.012	.048	.112	.378
	The distribution of Alertness to Assessment Demands is the same across genders	.188	.436	.298	.122
	The distribution of Achieving is the same across genders	.036	.070	.555	.637
	The distribution of Monitoring Effectiveness is the same across genders	.207	.202	.558	.955
Surface Approach	The distribution of Lack of Purpose is the same across genders	.145	.226	.761	.112
	The distribution of Unrelated Memorising is the same across genders	.005	.160	.007	.042
	The distribution of Syllabus Boundness is the same across genders	.004	.007	.005	.021
	The distribution of Fear of Failure is the same across genders	.924	.523	.852	.336

Figures 7.1 – 7.17: Details of Kruskal-Wallis tests for statistically significant differences between genders

Figure7.1: SA for FR

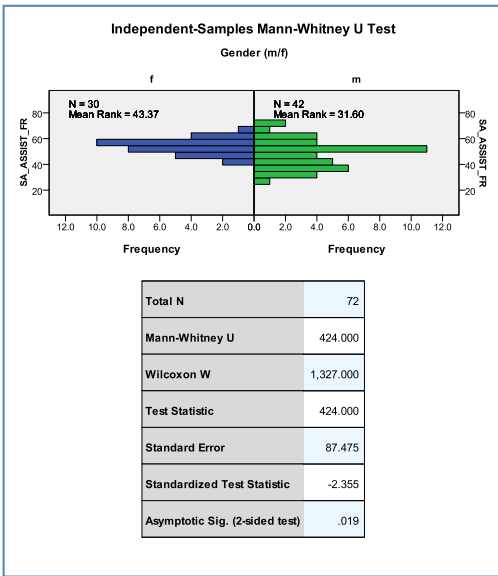


Figure7.2: DA for MAF

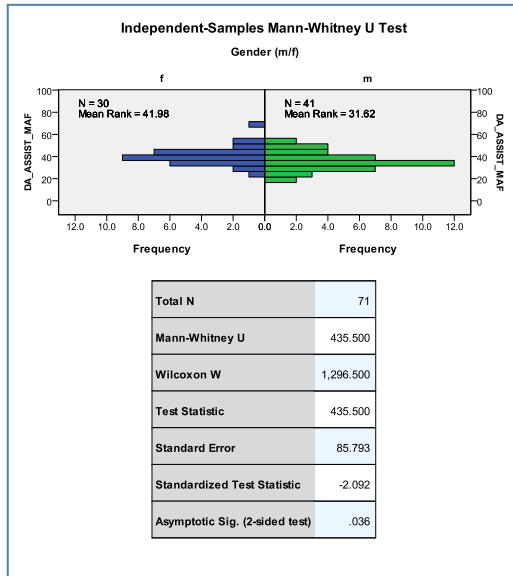


Figure7.3: SA for TAX

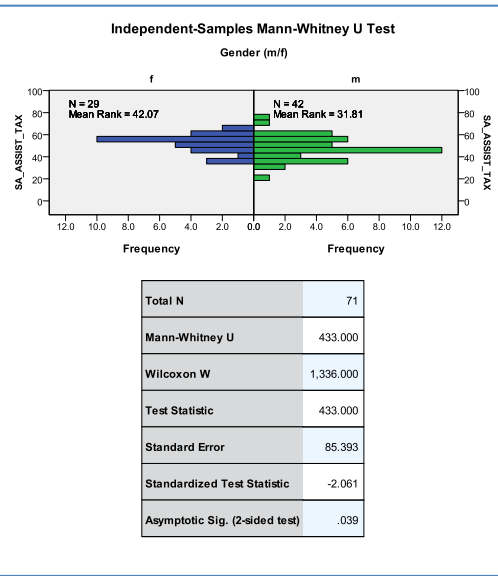


Figure7.4: RI for FR

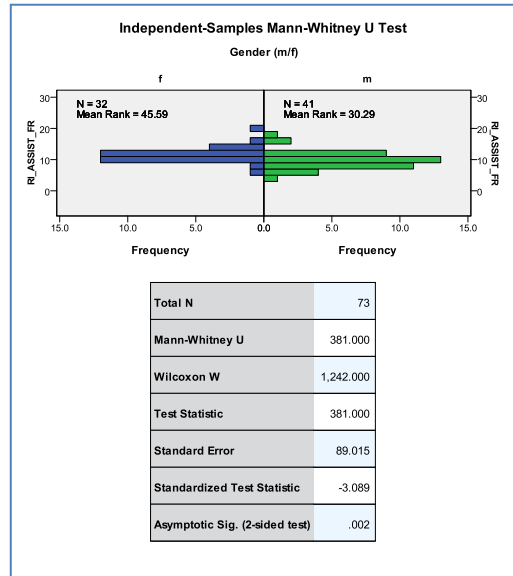


Figure7.5: RI for MAF

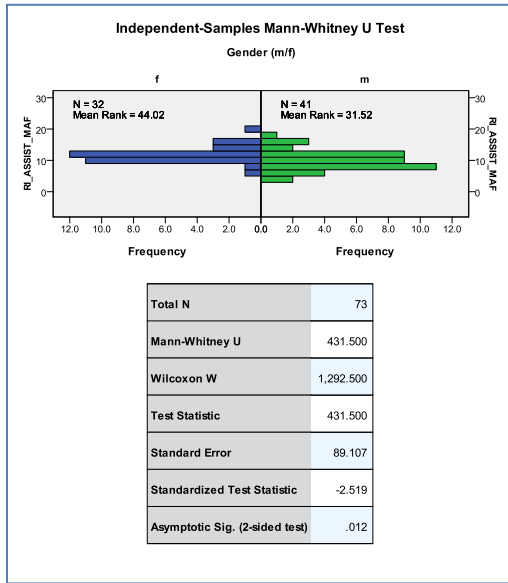


Figure7.6: RI for TAX

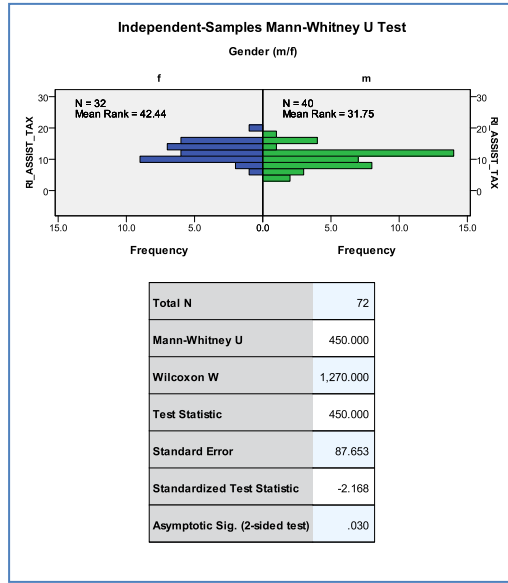


Figure7.7: SM for CG

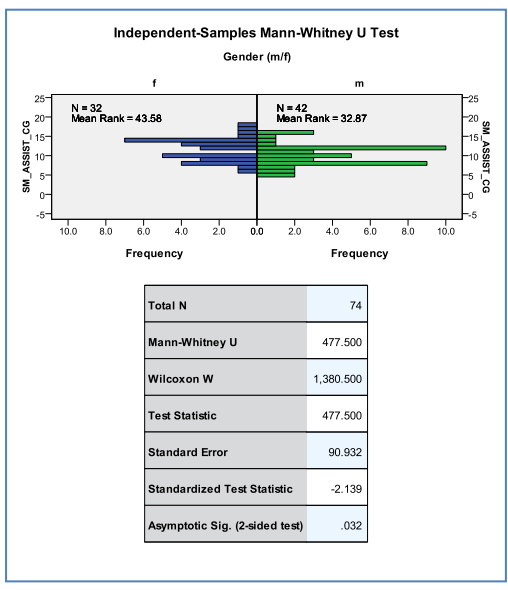


Figure7.8: AC for FR

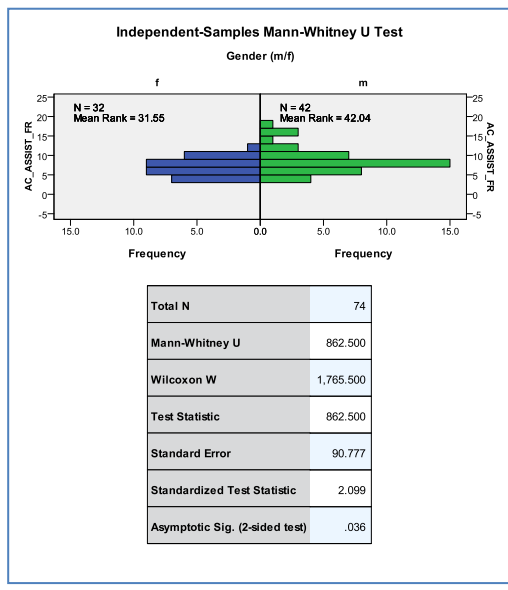


Figure7.9: TM for FR

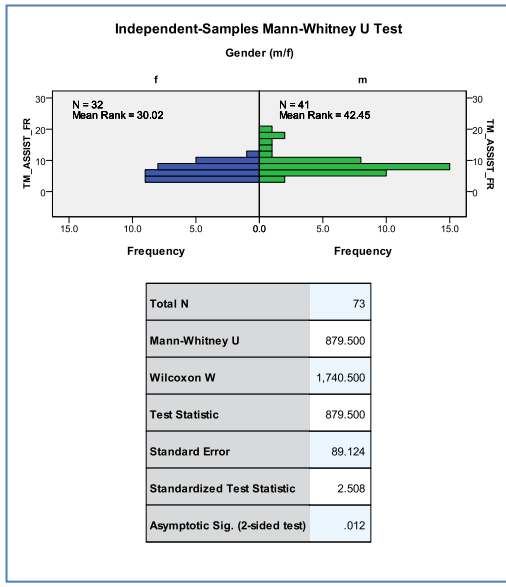


Figure7.10: TM for MAF

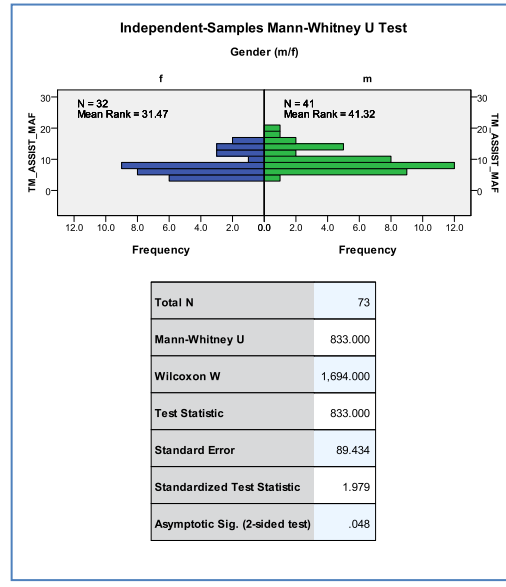


Figure7.11: UM for FR

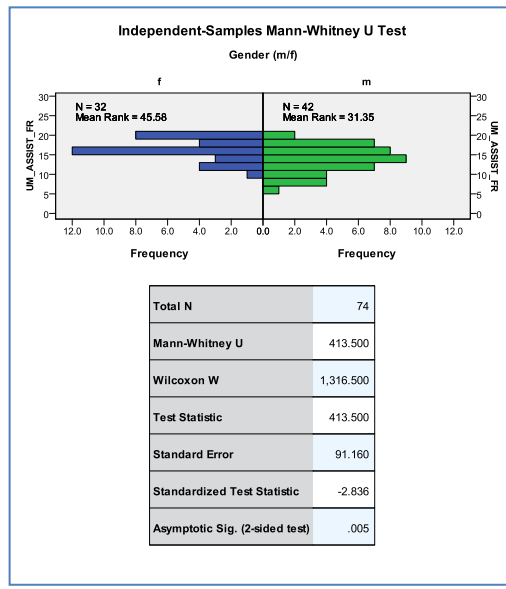


Figure7.12: UM for TAX

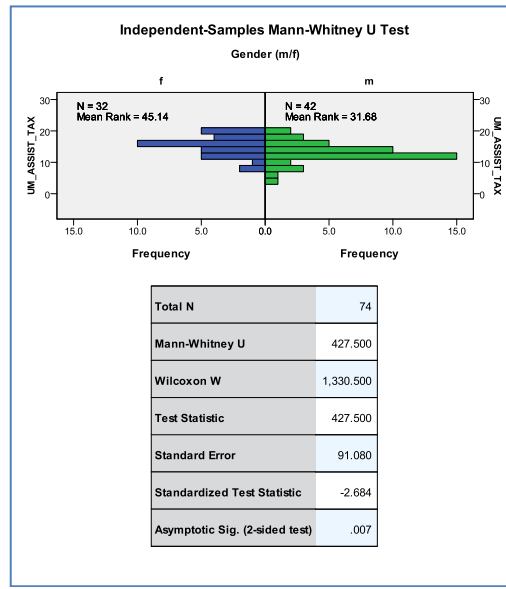


Figure7.13: UM for CG

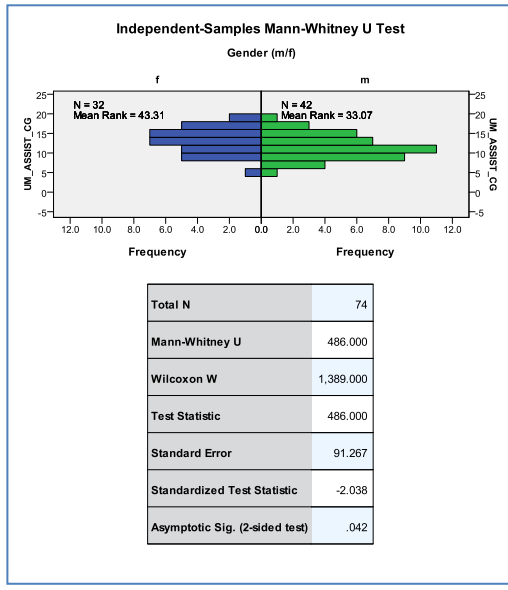


Figure7.14: SB for FR

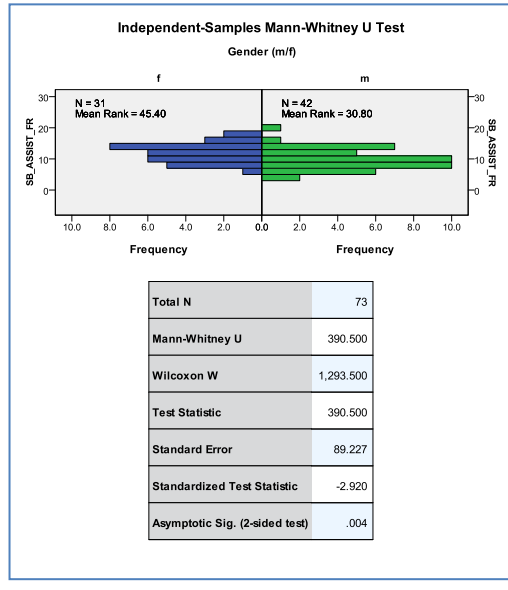


Figure7.15: SB for MAF

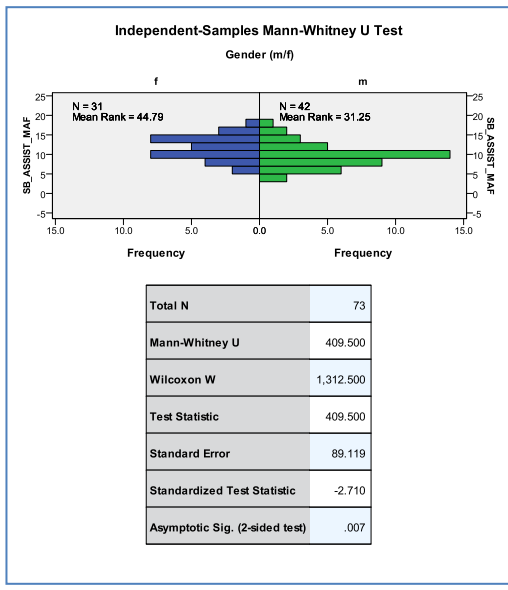


Figure7.16: SB for TAX

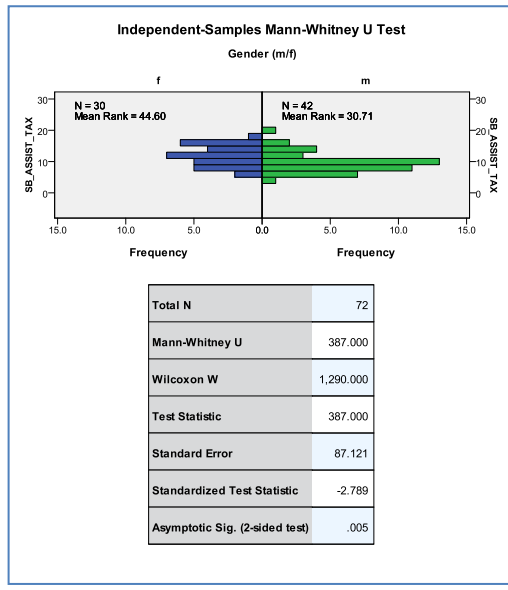


Figure 7.17: SB for CG

