Cape Peninsula
University of Technology

ASSESSING THE CREATIVITY LEVELS OF RETAIL BUSINESS MANAGEMENT STUDENTS STUDYING AT THE CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

by

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DECLARATION

I, Eric van Zyl, declare that the content of this thesis represents my own unaided work, and that the thesis has not previously been submitted for academic examination towards any qualification. Furthermore, it represents my own opinions and not necessarily those of the Cape Peninsula University of Technology.

Signed **Date**

ABSTRACT

Background: Retail in South Africa is a growing industry, but new demands and the influx of foreign competition require retail business managers to be more creative in solving modern-day complex retail problems. An embedded outcome of the registered National Diploma: Retail Business Management qualification offered by the Cape Peninsula University of Technology is that students should be able to identify business problems and creatively make sound business decisions to solve these problems. However, because creativity is such a diverse topic, it seems that educational institutions and educators do not commit themselves to and evade the development of creativity. Consequently, this leads to graduates being ill-prepared in creatively solving the complex and often unique business problems they encounter in the Wholesale and Retail sector.

Objectives: The objective of this study was to determine the creativity profile of Retail Business Management students and evaluate the progress of their creativity levels from their first- to third year. This approach evaluated if the embedded outcome of creativity was met for the National Diploma: Retail Business Management qualification.

Methodology: Empirical research was conducted by collecting a combination of quantitative and qualitative data to determine the creativity levels of Retail Business Management students. A questionnaire consisting of both qualitative- and quantitative questions was used to evaluate the creativity levels of 159 full-time students and 16 students from the retail industry studying through the university's Retail Academy. Quantitative data were analysed using both descriptive- and inferential statistics.

Findings: Based on the analysed data, it was found that creativity is one of the key attributes, if not the most important, to ensure continued business success in the South African retail industry. The results indicate that participants were creative, but not at the required levels. It was further established that there was no growth in the creativity levels of the participants from their first- to third year of studies, thus indicating that the required outcome of creativity, as stipulated in the qualification criteria, was not achieved.

Recommendations: It is recommended that further research should be conducted in an attempt to propose a suitable creativity instrument for developing the creativity of Retail Business Management students as this would ensure that graduates are confident and able to use their creativity to address the unique challenges that the South African retail industry face.

KEYWORDS: Creativity, retail business management, education, creativity, profile, evaluation, learning

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Opinions expressed in this thesis and the conclusions arrived at, are those of the author, and are not necessarily to be attributed to the Wholesale and Retail Sector Education and Training Authority or that of the Cape Peninsula University of Technology.

DEDICATION

This thesis is dedicated to those who believed in me even during times when I did not believe I was going to complete this journey.

- My Creator, God and Saviour, Jesus Christ, for the talents and grace granted to me to make this journey possible.
- My wonderful wife, Sonja, yes it was a very long journey, but your unconditional love, motivation, and endless support carried me through until the end.
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LIST OF ABBREVIATIONS

AI	Artificial Intelligence
CEO	Chief Executive Officer
CPUT	Cape Peninsula University of Technology
DHET	Department of Higher Education and Training
EQ	Emotional Intelligence
FIFA	Federation Internatinale de Football Association
GDP	Gross Domestic Product
GERM	Global Educational Reform Movement
GIFFI	Group Inventory for Finding Interests
ICBMD	International Conference on Business and Management Dynamics
Industry 4.0 / 4IR	Fourth Industrial Revolution
IoT	Internet of Things
IQ	Intelligence Quotient
MSA	Measure of Sampling Adequacy
MWW	Mann-Whitney-Wilcoxon
NACCCE	National Advisory Committee on Creative and Cultural Education
NASA	National Aeronautics and Space Administration
ND	National Diploma
NDEA	National Defence Education Act
PISA	Programme for International Student Assessment
POPI	Protection of Personal Information
PwC	PricewaterhouseCoopers
QCDA	Qualifications & Curriculum Development Agency
RBM	Retail Business Management
SAQA	South African Qualification Authority
SI	Structure of Intellect
SMC	Squared Multiple Correlations
UK	United Kingdom
USA	United States of America
W&RSETA	Wholesale and Retail Sector Education and Training Authority
WEF	World Economic Forum
WRS	Wholesale and Retail sector

CHAPTER 1
INTRODUCTION TO THE RESEARCH STUDY

1.1 INTRODUCTION

Creativity is probably the most crucial influence/characteristic for any (retail) business to survive in the exceedingly competitive (global) environment. Creativity enables companies to encourage their employees in applying themselves beyond the confinements of the proverbial box, through the way they apply their creativity as a problem-solving method for the complex problems companies face within the South African retail industry (Pma.com, 2017). Naiman (2019:Online) argues that businesses are currently operating in "the age of creativity" and without creativity, businesses will not be able to survive in the competitive business environment. Landry (2017:Online) highlights the importance of creativity in modern-day businesses as they operate in a "highly competitive, global environment, making creativity crucial". Creativity is, therefore, essential as business is becoming exponentially more competitive and complex. Companies can no longer only survive on the intelligence (education) of their employees. Creativity must become "an integral" contributing factor for companies to be considered a successful business (Patterson, 2018). She argues that by shaping and harnessing the creative skills of employees within the organisation will become a game-changer for your company.

Since creativity has been identified as one of the key success factors to ensure business success (Landry, 2017; Naiman, 2019), it was included by the South African Qualification Authority (SAQA) as a critical outcome in the National Diploma (ND): Retail Business Management (RBM) qualification (SAQA ID: 78666 – see Appendix A). Students find it challenging to be creative in solving business problems through case studies and using existing knowledge in unfamiliar situations. As a result, students do not challenge the status quo but stay within the safe parameters of the information obtained from textbooks or study material to address problem-solving situations. It seems that students have lost their free-thinking ability. Furthermore, despite a plethora of research on how to effectively measure creativity, it is evident that humans are currently not as creative as they could be.

From the above, a broad base analogy can be drawn that the creative levels of RBM students are neither on par with the expected outcomes of the ND: RBM qualification nor industry requirements. The objective of this research study was, therefore, to determine the creativity levels of ND: RBM students studying at the Cape Peninsula University of Technology (CPUT) as creativity plays a critical role in the survival of retail businesses that operate in a highly competitive and global environment (Landry, 2017). Improved creativity levels will enhance the ability of ND: RBM graduates to effectively apply themselves in this age of creativity that companies currently must operate in (Naiman, 2019).

The content of Chapter 1, along with the relative positioning of the various topics which will be addressed therein, is graphically depicted in Figure 1.1.

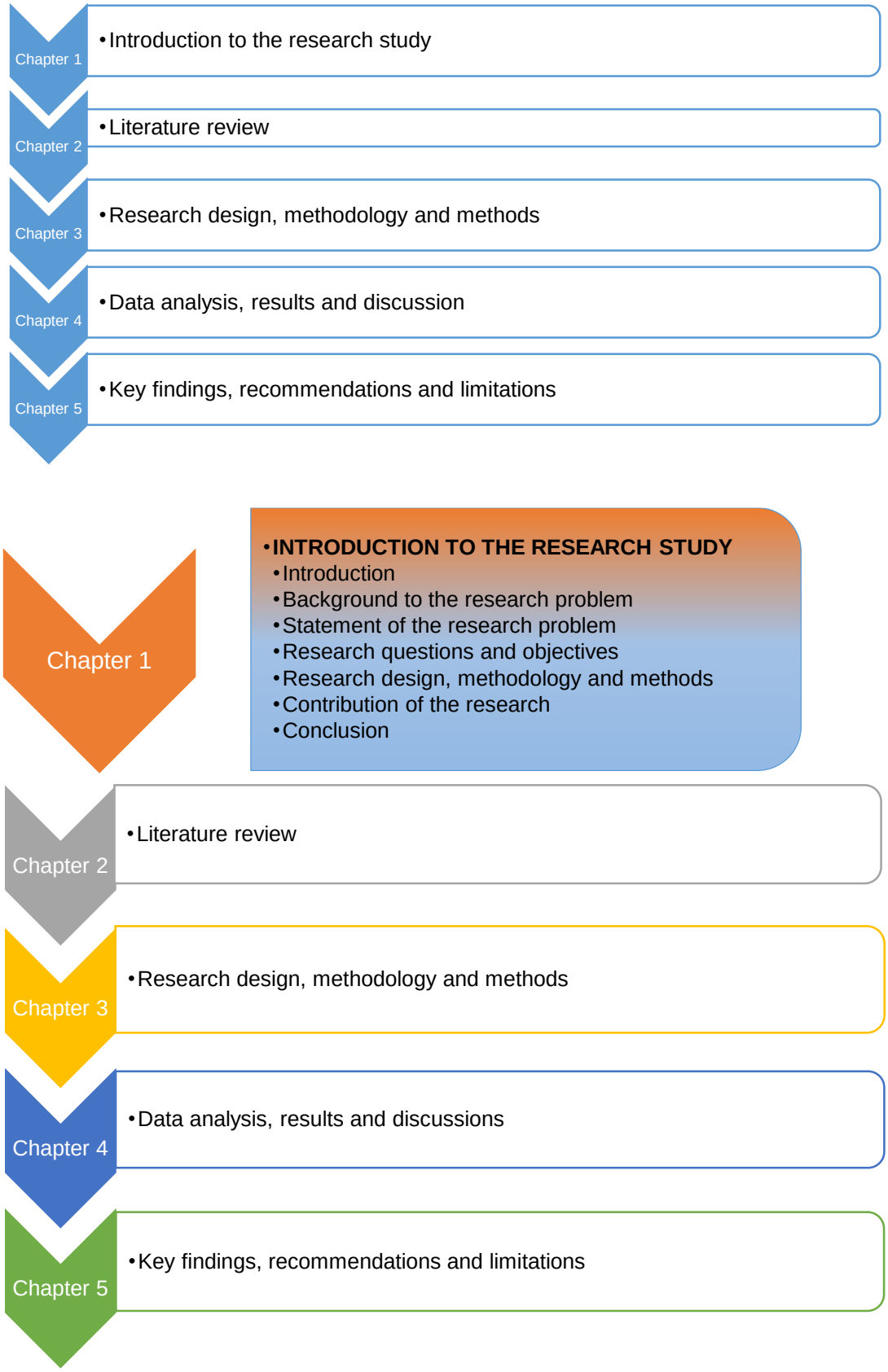

Figure 1.1: Detailed layout of Chapter 1 - Introduction to the research study

1.2 BACKGROUND TO THE RESEARCH PROBLEM

Retail is the fourth strongest economic contributor to the South African Gross Domestic Product (GDP) (W&RSETA, 2016). The retail sector employs 22 per cent of the total South African labour force of which 66 per cent falls within the formal employment sector and 34 per cent in the informal employment sector (W&RSETA, 2016). This indicates that the South African retail sector is growing and vibrant; however, it is also rapidly changing. Durham (2011) envisaged that the retail industry would be confronted with numerous challenges such as altering the buying habits of consumers, more knowledgeable and shrewder customers, the rivalry between independents and branded retail entities, and the prominent entry of large foreign retail businesses into the South African retail sector. It is, therefore, evident that CPUT ND: RBM graduates should be prepared to face these inconceivable challenges from a variety of sources of which many will be unique and could only be resolved through creativity.

According to SAQA (2018), creativity is an essential requirement for the registered ND: RBM qualification (SAQA Qualification ID: 72261). The qualification stipulates that creativity should be one of the critical embedded outcomes for the RBM qualification where students must be able to "identify problems and creatively make responsible decisions to solve problems to benefit the retail/wholesale business and community as a whole" (SAQA, 2018:Online).

The SAQA registered qualification refers to various exit-level outcomes, which include the 1) specific outcomes, covering the syllabus of the qualification; 2) critical outcomes that are supposed to be fully embedded within the qualification; 3) associated assessments covering the details on content that need to be assessed within the qualification; and 4) the integrated assessments, indicating the inter-relationship of all business functions in a retail business. However, there is no reference in the assessment criteria for the evaluation/assessment of creativity.

The business dictionary (BusinessDictionary, 2019a) defines creativity as an intellectual characteristic provides an individual the ability to think beyond/outside the proverbial box, thus enabling the individual to use different, innovative and creative approaches to perform a task. There are many definitions related to creativity, but due to the intricacy and multidimensional nature of creativity, it was impossible to identify one incorporated definition for the purpose of this research study. This study recognised creativity as a characteristic that requires RBM students to show distinguishing features or attributes. Students should be able to generate creative resolutions and strategies for solving multifaceted retail management challenges. RBM students should thus be open-minded in their approach to not conform to norms, but instead, be actively involved in finding creative solutions in the execution of any activity they are involved in. These students should, therefore, be willing to contemplate solutions or elucidations to problems that have not been considered before – solutions that are new, novel,

fresh, original, unusual or unique. Furthermore, open-mindedness would encourage and enable RBM students to listen to the ideas of others and be prepared to change their minds.

The creativity of RBM students is not about how they answer test questions or solve case study problems but is instead seen as a skill to be learned by all students. Everybody can draw a picture; some people can naturally draw well, while others must put a lot of effort, practice, and dedication into drawing. Creativity, like drawing, is seen as a skill that each person is born with, but the skill needs to be practised, developed, and nurtured to become an instrumental skill in individuals. RBM students are expected to view the retail business landscape with all its unique challenges differently, in a new way, breaking new ground in solving retail management problems, with an awareness that free-thinking (also referred to as unusual/out of the box thinking) could solve problems without the confinements set by the barriers of the preverbal box.

The importance of creativity is eminent in many research outcomes, indicating the importance of creativity as a critical skill for the modern-day retail business manager. Business managers are expected to address business challenges and creatively solve complex business problems. More creative insight is required in finding suitable solutions in a complex retail business environment. Finding creative solutions to intricate retail business problems (e.g., dealing with new and unique customer needs and complex employee situations, facing new demands regarding system information and data analysis, developing business plans for new business ventures, being creative in strategic planning, swot analysis, tactical planning, advertising, marketing and selling products/services, merchandise stock management, international purchasing, human resources planning, recruitment, and staff development) is one of the key management attributes in providing a business with a competitive advantage over its competitors. Furthermore, businesses should do everything possible to reduce costs. Retail business managers are thus also required to become creative in effectively utilising cost-saving methods to ensure better profits for the business.

Retail executives and the W&RSETA skills plan of 2011 – 2016 identified retail business management as a critical scares skill. Scares skills refer to professions in which there is a scarcity of skilled and knowledgeable individuals suitable for employment. The skills plan further pointed out that the skills shortage in this sector is due to inadequate training and proper education facilities, as well as a lack of employees with suitable retail management experience that can be recruited (W&RSETA, 2016). Qualified middle-management is high in demand and about 70 per cent of job positions advertised require skills (e.g., computer skills, selling skills, financial insight, and interpersonal skills) and senior management experience. However, only 44 per cent of applicants meet these requirements (W&RSETA, 2016).

The skills shortage indicates the importance of the National Diploma: RBM qualification offered at the CPUT. However, if these graduates are to become successful retail business managers in the near future, they should be proficient and skilled in understanding and creatively resolving the imminent unique South African retail challenges they would face. Should the graduates not meet these requirements, it could result in the stagnation of the retail industry.

It is, therefore, essential that graduates enrolled for the RBM diploma should be able to think creatively and solve business problems beyond the usual confines of the curriculum. They should be able to challenge the status quo and use creativity to confront the fast-changing environment of RBM. They should generate creative resolutions and strategies in solving multifaceted management challenges facing the industry.

Taking into account the above, the inference can be made that despite creativity being a crucial skill required in the retail business industry to succeed in the competitive retail industry, creativity is not comprehended as a critical outcome for the RBM qualification at the CPUT and consequently, graduates do not meet the required creativity levels that the retail industry requires.

1.3 STATEMENT OF THE RESEARCH PROBLEM

Creativity is an essential outcome for CPUT RBM graduates as stipulated by the SAQA in the ND: RBM curriculum. In order to succeed in a vibrant South African- and international retail industry, RBM graduates need to be creative. Currently, no set standard framework to gauge the appropriate creativity levels expected from RBM graduates exists within the curriculum. Therefore, against the background of the research problem (see Section 1.2), the research problem reads as follows:

Creativity is a crucial skill required to succeed in the competitive retail business industry; however, it is unclear to what extent students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT.

1.4 RESEARCH QUESTIONS AND OBJECTIVES

For this study, one primary research question was asked with the main intent to mitigate the research problem (see Section 1.3), which subsequently had a primary objective. The primary research question was further divided into four research sub-questions and four secondary research objectives. The primary research question, primary research objective, research sub-questions, and secondary research objectives are elaborated upon below.

1.4.1 The primary research question and objective

The primary research question in support of the mitigation of the research problem (see Section 1.3), read as follows:

To what extent do students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT?

Taking the primary research question above into account, the primary research objective pertaining to this research study is:

To determine the extent to which students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT.

1.4.2 The research sub-questions and objectives

The primary research question was further divided into four research sub-questions. The research sub-questions, research methods and secondary objectives which related to the main research question and primary research objective (see Section 1.4.1), as well as the research problem (see Section 1.3), are summarised in Table 1.1 below.

Table 1.1: Research sub-questions, research method, and secondary research objectives relative to this study

Sub-question	Research method(s)	Objective
To what extent do the creativity levels of RBM students meet the required creativity levels of the retail industry?	Survey	To determine the extent to which the creativity levels of RBM students meet the required creativity levels of the retail industry.
To what extent are the creativity skills of RBM students developed over the three-year duration of the qualification?	Survey	To determine the extent to which the creativity skills of RBM students are developed over the three-year duration of the qualification.
To what extent do gender, age, and ethnicity have an impact on the creativity levels of RBM students?	Survey	To determine the extent to which gender, age, and ethnicity have an impact on the creativity levels of RBM students.
How does creativity influence students' choice of study?	Survey	To determine if there is a correlation between creativity levels and students selecting RBM as the first choice of study.

1.5 RESEARCH DESIGN, METHODOLOGY AND METHODS

1.5.1 Research design

Robson (2013:70) explained that research design "is a crucial part of any research project but is often slid over quickly without any real consideration. Design is concerned with turning research questions into projects." Any research design can be categorised into: 1) empirical- and/or non-empirical research, 2) primary- and/or secondary data collection, 3) numerical- and/or textual data collection, and 4) the level of control of the data collection tools used.

This research study was empirical in nature. A survey (see Appendix B1) was used to conduct empirical research. Survey research[1] was used by collecting primary research data from a targeted population group (ND: RBM students enrolled at the CPUT), with the primary intent to obtain data for analysing purposes to, in turn, draw relevant conclusions (Connaway & Powell, 2010).

1.5.2 Research methodology

Research methodology is defined as a technique that for example researchers can use to accumulate data/information to reach conclusions or to make effective business decisions. The methodology provides researchers different options for obtaining the data/information required and can include current and historical evidence that can be obtained through publication research, interviews, surveys, and other research techniques (BusinessDictionary, 2019b). Furthermore, research methodology can take the form of 1) quantitative research, 2) qualitative research, and/or 3) mixed-methods research (entailing both quantitative research and qualitative research). Based on the research design used within the ambit of this research study, the research methodology was both quantitative and qualitative in nature.

1.5.3 Research method

In light of the research design and research methodology described above, suitable research method(s) had to be identified. The term 'research methods' can be viewed as the tool(s) that are used in collecting data to be used for research and could include research methods such as experiments, surveys, questionnaires, interviews, case studies, and observations (North Dakota Compass, 2019). For this study, a survey was used to collect quantitative and qualitative data from respondents in relation to the identified research problem (see Section 1.3). A quantitative approach suggests structured 'closed' questions, while a qualitative approach suggests unstructured 'open-ended' questions (Watkins, 2012).

The research survey consisted of a quantitative part, Part A (see Appendix B1), where students had to rate their creativity levels against 40 statements. In Part B, students had to verify their creativity by means of open-ended questions that corroborated their understanding of creativity and their creative aptitudes on the different levels of creativity as pronounced by Maslow (1976). Primary creativity was determined by listing uses for objects like a teaspoon, a chair, and paper clips. Secondary creativity was evaluated by allowing students to combine random words into a single sentence. Secondary creativity was also evaluated in Part C of the survey where students were required to complete incomplete pictures and combine shapes to form a picture using materials provided such as paperclips, blank sheets of paper, pencils, and a

[1] Survey research refers to "the collection of information from a sample of individuals through their responses to questions" (Check & Schutt, 2012:160).

paper bag (see Appendix B2). All the data were scored according to a marking matrix (see Appendix B3) to provide quantitative data.

Stemming from the collection of primary quantitative data, relevant statistical analyses (descriptive- and inferential statistics) were performed with the main intention to answer the posed research sub-questions, allowing for the answering of the primary research question.

1.5.4 Sampling

The sampling population comprised of all 2018 full-time students (n=525) registered for the ND: RBM at the CPUT. All the first-year students who participated in the study were registered for Business Management I (ONB102S), second-year students were registered for Business Management II (ONB202S), and third-year students were registered for Shopping Centre Management (SHM100S) – all these students made up the sample population.

As all the above students were invited to participate in the study, the sampling method used was twofold:

- **Convenience sampling:** as it could be argued that the population was conveniently accessible as students at the CPUT.
- **Purposive sampling:** as only students studying towards the ND: RBM qualification qualified to partake in the study.

Students participated in the study out of free will (voluntary participation) and could withdraw from the study at any time without any consequences.

1.5.5 Data analysis

The data were captured as numerical values using Microsoft Excel. Statistical analysis was done using Megastat, a Microsoft Excel-based application software package. The quantitative data were used to conduct analysis and comparisons and results were published in Microsoft Excel as graphs and tables.

The research design, research methodology and research methods employed in this study are elaborated on in Chapter 3.

1.5.6 Ethical consideration

According to Fouka and Mantzorou (2011:4), “research ethics involve requirements on daily work, the protection of the dignity of subjects and the publication of the information in the research”. It is, therefore, of essential that, for this research study, sound ethical principles and behaviour should be adhered to. Ethical factors considered for this study include:

- **Informed consent:** All the respondents were given full disclosure of the nature of the study before they were asked to participate voluntarily in the research study. The latter was done by means of: 1) a consent form where each respondent had to give consent

prior to participating in this research study, and 2) on the first page of the survey, a paragraph was provided stating that all information provided by each respondent would be kept strictly confidential. There was no form of retribution towards students deciding not to participate in the research study.

- **Voluntary participation:** The participation of respondents was completely voluntary, and each respondent could withdraw from the research study at any time if he/she wanted to, without fear of reprisal.
- **Protection from harm**: All students were safeguarded from physical harm – respondents were only required to complete the survey.
- **Right to privacy:** All information provided by respondents was kept strictly confidential. On the first page of the survey, a section was provided stating that the confidentiality of all respondents and related data will be guaranteed.

1.6 CONTRIBUTION OF THE RESEARCH

This research study was conducted with the main intent to determine the extent to which students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT and how this could add value to the RBM department's understanding regarding the importance and necessity of creative development and the practical evaluation/measuring of students' creativity in order to ensure the successful preparation of students for the retail industry. This approach would allow RBM graduates to be better equipped to generate creative business ideas, solve complex business problems, and make responsible and sound business decisions which, in turn, could provide their companies with a competitive advantage over their competitors. This research study contributes to the existing body of knowledge by: 1) providing a thorough literature review that highlights the current status regarding the importance of creativity within the RBM industry, as well as the lack of creativity development in an educational environment, and more specifically in the RBM department at the CPUT, 2) analysing the data collected to provide empirical evidence on, among other things, the research problem, and 3) making relevant recommendations and conclusions with the intent to mitigate the current lack in creativity amongst ND: RBM students. The value above added is beneficial to the following entities:

- **RBM department:** Currently no formal method exists for evaluating the creativity levels of RBM students despite the critical outcome, as stipulated in the SAQA registered qualification (see Appendix A), that requires students to be creative. It is essential that RBM graduates must be able to use creative problem-solving as part of the general management functions in retail businesses (e.g., conducting research on retail business problems, dealing with staff-related problems, solving operational issues, using various computer software programs to solve complex business problems, etc.).

This study will provide vital information regarding RBM graduates' level of creativeness in comparison with industry expectations.

- **RBM students:** Insight is provided regarding the importance of creativity in becoming a successful role player in the retail business industry. Creativity will further assist RBM graduates in making responsible and sound business decisions and solving complex business problems as they can make better connections between the knowledge obtained through their education and the real business world.
- **RBM educators:** Insight is provided regarding the importance of creativity, creativity development, and evaluation of creativity as required by the critical outcomes as stipulated in the SAQA registered qualification.
- **Retail industry:** Insight is provided regarding the importance of creativity as a critical skill required by all retail employees to make responsible and sound business decisions, solve complex business problems, and giving their companies a strategic- and competitive edge over their competitors.

1.7 CONCLUSION

In this chapter, an overview was provided on the background pertaining to the research problem. Creativity has been specified as one of the critical skills required to succeed in the retail business industry. The registered ND: RBM qualification acknowledges the importance of creativity as a critical outcome for RBM graduates. The inference was drawn that ND: RBM students at the CPUT do not possess the required creativity levels expected by the retail industry since no formal evaluation of or development process exists for the identification and development of the creative skills of these students.

A brief overview was also provided on the research problem, primary research question and objectives, as well as the research sub-questions and secondary research objectives. In addition, a summary of the research design, research methodology, and research method employed in this study was provided while also stating the contribution made from the research conducted. Following Chapter 1, the chapter- and content analysis applicable to this research study are as follows:

Chapter 2: Literature review – A detailed literature review covers the most prominent topics relevant to the research study. Topics reviewed include an overview of creativity, creativity in education and the evaluation thereof, as well as creativity in RBM.

Chapter 3: Research design, methodology and methods – In this chapter, a detailed explanation regarding the chosen research design, research methodology and research method for the study is provided. The research design provides a detailed outline of how the data were collected, while the research methodology provides context to the research problem

and the research objectives of the study. It furthermore, supplies comprehensive information to aid in the understanding of, inter alia, the research process followed.

Chapter 4: Data analysis, results and discussion – In this chapter, data collected with the creativity survey are presented, data gleaned from the survey are analysed using descriptive- and inferential statistics, interpreted in relation to the primary objective of the research problem, and statistically presented.

Chapter 5: Conclusions, recommendations and further studies – In this concluding chapter, key aspects pertaining to this research study are revisited. Recommendations are made, conclusions are drawn, and suggestions for further studies are provided.

CHAPTER 2
LITERATURE REVIEW

2.1 INTRODUCTION

This chapter provides a detailed literature review that emphasises the importance of creativity in education, especially for ND: RBM graduates enrolled at the CPUT, as well as retail business management in South Africa. These graduates must meet the required industry creativity levels as stipulated in the SAQA registered ND: RBM qualification in order to ensure that these students are adequately prepared to use their creativity in solving complex business problems and making sound business decisions, as this, in turn, would provide their employers with a competitive edge.

According to Birley and Moreland (1998), the literature study is a significant component of any research report; it is a critical analysis of existing literature and is vital to determine and clarify the research questions. Winchester and Salji (2016:308) concluded that the literature study is "an evidence-based in-depth analysis of a subject …. an extension of information gathered to get a personal insight to the background of a topic." Polonsky and Waller (2011) opined that earlier written (scholarly) material that relates directly or indirectly to the researcher's area of study is vital for the success of any study undertaken.

Within this research study, a literature review was conducted to do an in-depth evaluation of prior research to address the identified research problem (see Chapter 1, Section 1.3). Relevant discussion takes place under the following headings: 1) An overview of creativity that includes a discussion on what creativity entails, the origination of creativity, creativity in the 21st century (focusing on Artificial Intelligence (AI) and the Fourth Industrial Revolution), as well as the benefits and barriers of creativity; 2) Creativity in education, including the educational requirements to incorporate the development of creativity, and empirical research on creativity in developed- versus developing countries; 3) Evaluation of creativity in education including the various challenges faced in assessing creativity and creativity assessment methods, 4) Creativity in RBM including the importance of creativity in RBM.

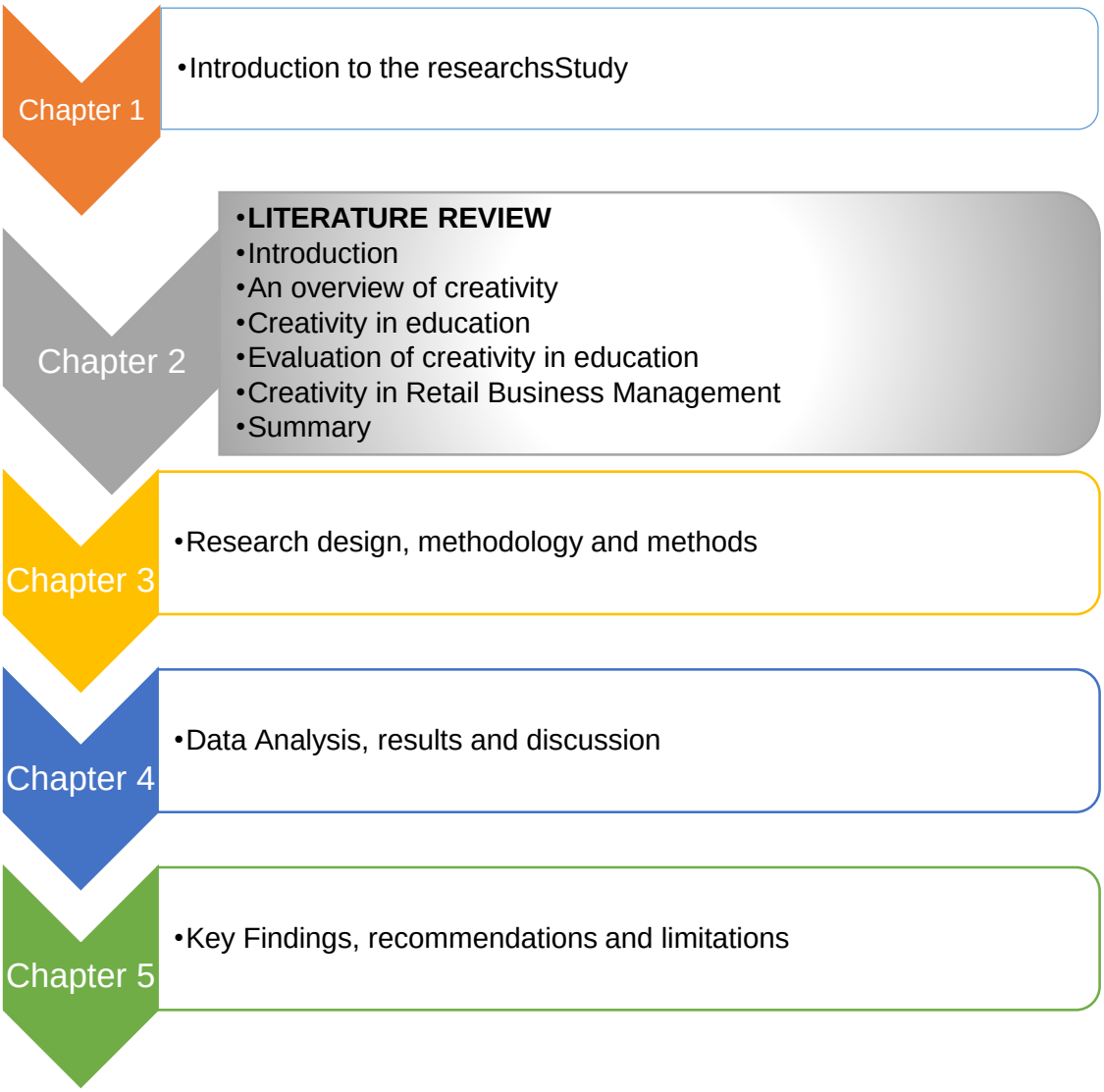

Figure 2.1: Detailed layout of Chapter 2 - Introduction to the literature review

2.2 AN OVERVIEW OF CREATIVITY

The literature on creativity highlights the complexity of creativity; however, among the voluminous resources consulted, no single definition could be found that accurately delineates creativity. Bohm (1998:1) opening remarks in his book “On creativity” indorse this dilemma when he states that creativity is a diverse topic and that “Creativity is, in my view, something that it is impossible to define in words. How, then, can we talk about it?”. Due to individual interpretations, understandings, and applications of creativity, creativity means diverse concepts to different individuals. Their understanding and interpretation of the term “creativity” would, therefore, result in many different attitudes, meanings, and definitions. This would further imply that individuals could use their own interpretation of a situation to conclude a

creative outcome. Even though creativity could not be defined in one concise definition within the ambit of this research study, accepted definitions have been identified through a detailed literature study and will be expanded upon in this chapter.

2.2.1 What is creativity?

Thinking about creativity, words like originality, imagination, inspiration, ingenuity, inventiveness, resourcefulness, creativeness, vision, innovation, new, novelty, uniqueness, and advancement come to mind. The BusinessDictionary (2019a) defines creativity as a mental characteristic (a distinguishing feature or attribute of an item, person, phenomenon, etc.) that allows a person to think outside of the box which, in turn, results in innovative or different approaches to a particular task.

According to Bohm (1998) and Robinson and Aronica (2015b), many researchers argue that creativity cannot be defined due to its complexity. Robinson and Aronica (2015a:2–4) conceptualise creativity as "the process of having original ideas that have value" and identify imagination and innovation as two critical components that need to be taken into consideration when referring to creativity. Without imagination, creativity will not be possible, as imagination is the origin of creativity. Creativity is a dynamic process that leads to renewed thinking that frequently results in an outcome that you did not expect. This is obtained by making novel associations often across various disciplines. It is, therefore, evident that creativity is not a one-dimensional process that requires the continued development and sharpening of skills.

Maslow (1976) envisaged creativity as an aspect of human nature that are found universally in all human beings. In children, creativity can be seen or witnessed, but he advocated that creativity seemed to be lacking in adults. Maslow detected two levels of creativity in people; primary creativity was identified as necessary for creative/novel discoveries, definite novelties, or ideas which advanced from what occurs at the present time. Secondary creativity is viewed as a characteristic that researchers use for the incorporation of earlier researched work to establish new ideas. Both primary- and secondary creativity are of interest in this research study.

Since creativity is such a diverse topic, the researcher believes that creativity is influenced by our thinking, personality, culture, beliefs, and everyday problems and situations we face. However, the most important factor that influences creativity is the motivation, drive, and/or willingness of an individual. Someone, for example, can have the ability to become a great musician, but might not be motivated to practice or perform in front of crowds. Therefore, creativity should be much more than a skill; creativity is a process where an individual can identify opportunities through new ideas, act on these ideas, and implement creative solutions. This view is supported by Zennouche, Zhang and Wang (2014) who found personality, motivation, and cognition to be the three most crucial factors that influence individual creativity.

Naiman (2019), founder of Creativity at Work, an enterprise that assists companies in developing creativity and leadership through coaching, concurs that creativity is a process that requires action and the capacity from an individual to incorporate the two key processes, namely thinking and producing. She stipulates that creativity requires an individual to demonstrate both passion and commitment to the creative process. It can, therefore, be argued that should an individual identify a new idea but any of the other factors such as action, passion, and commitment are absent, the creative process will fail, and the individual could merely be described as imaginative.

Sternberg (2001) opines that there is a link between creativity, intelligence, and wisdom. Intelligence is indispensable for creativity. Leaders are required to not only create original concepts but correspondingly need to study novel notions critically. To produce new concepts, some elementary intelligence is required; however, to critically scrutinise the generated ideas, more sophisticated intelligence is required. Beyond intelligence, leaders also need wisdom. Sternberg (2001) further considers wisdom to be the balance between creativity and intelligence, conveying the original concepts according to their relevance. It may be easy to generate new concepts, but to discriminate between reasonable and unreasonable concepts, insight is required. Plucker, Beghetto and Dow (2004:90) include a third option in the creative process by arguing that there is a collaboration between "aptitude, process and environment by which an individual or group produces a perceptible product that is both novel and useful as defined within a social context.''

Barajas and Frossard (2018:6) consider creativity as a critical personal skill for the modern-day society and labour force and describe creativity as a "complex and elusive concept which remains difficult to explore …. that require individuals to think imaginatively towards a specific goal, that will result in an original and valuable outcome". Hester (2019:Online) defines creativity within a business as "something that generates a new idea, insight, or solution through imagination rather than logic or reason". In order to attain creativity, it is indispensable that employees implement an improved methodology to problem-solving to achieve often surprising and rewarding outcomes. Creativity is often a key factor in businesses success in a modern-day competitive business environment (Hester, 2019).

Based on the above definitions, the inference could be made that creativity is a critical skill that can be taught/developed, that requires individuals to use a dynamic process, and includes creative thinking to achieve a positive outcome for a specific issue/situation.

Darbellay, Moody and Lubart (2017:xi) found that "creativity, design thinking, and interdisciplinary are three concepts that emerge in fields of study and practice apparently different but deeply complementary in the end. These three concepts come into strong

resonance insofar as they seem natural to share and convey the same spirit of openness, collaboration, and innovation". They conclude that these three concepts are the "major trends for the early twenty-first century". Most of the creativity examples mentioned above regarding the progress of humanity can be explained as interdisciplinary creativity that, through interdisciplinary design thinking, leads to new concepts as graphically depicted in Figure 2.1 and expanded upon below.

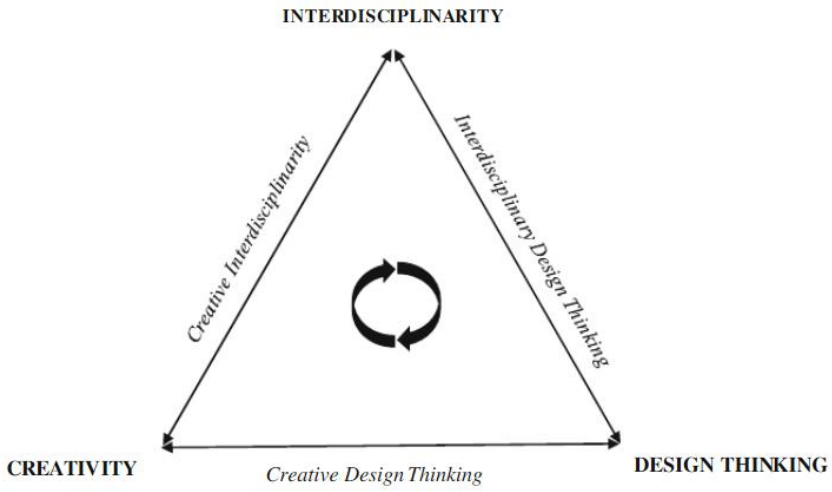

Figure 2.1: Interdisciplinarity, creativity, and design thinking framework

Source: Darbellay, Moody & Lubart (2017:xiv)

Interdisciplinarity refers to the desire to create bridges between different disciplines through the production of knowledge. This is vastly different from a multidisciplinary approach where different disciplines are defined, and divisions are created between the different disciplines. Interdisciplinary attempts to bring the different disciplines together to ensure that they work together in reaching objectives. In education, this could result in the incorporation of different curriculum disciplines where students can develop their creativity.

Creativity is explained as "an object of study perfectly eligible for an interdisciplinary approach, and it diffuses across borders in educational-, economic-, social-, and cultural issues". Creativity ties with "interdisciplinarity", not only because it is such a diverse field/topic that could be closely associated with other fields such as education, psychology, sociology, management, etc., but because creativity contributes to the interdisciplinarity and is likely to contribute to the development of diverse conceptualise thinking.

Design thinking is defined by Darbellay et al. (2017) as a method of thinking in the design process. Design thinking is used in, for example, the design of a new shaped toothbrush. "Creative design thinking focuses on the creative (original and adaptive) aspects of this process" (Darbellay et al., 2017:xvii).

Boden (1998) identified three diverse categories of creativity that are involved in the generation of original concepts, namely:

- **Combinational creativity** – the combination of familiar ideas into something new.
- **Exploratory creativity** – the generation of new ideas through exploration of structured concepts.
- **Transformational creativity** – changing some features of a structure so that new structures can be spawned.

The above categories confirm the diversity of the various concepts that are associated with creativity and Bohm's (1998) dilemma on defining creativity.

Sternberg (2001) refers to Charles Darwin, best known for his contributions to the science of evolution, as a creative human-being due to his intelligence. Darwin established the evolution theory, but more essential, he could critically evaluate his theory against other possibilities. Sternberg (2001) opines that had Darwin not been intelligent, he would not have been able to formulate his theory of evolution. Therefore, it can be argued that somebody could use creativity to produce a novel idea or concept, but without the necessary wisdom, the novel idea or concept may be overseen as being "foolish or inappropriate".

De Bono (1995), a leading researcher in lateral thinking, argued that instead of working harder with the same ideas, perceptions, and concepts, we seek opportunities to change them. He thus defines creativity in the most basic form – changing things to establish something new. Du Preez (2012:82) agrees with De Bono and defines creativity as being able to describe a creative object as "something new, valuable and unique that requires exceptional skills from the creator." Creativity should be different from everyday creativity to specific creativity. De Bono (1995) further identified the challenge pertaining to being creative and argues that daily creativity could be challenged through questions such as: "Do we have to do things this way? Is there a better way of doing this?" This is a way to challenge individuals to pause and wonder why things are done in a particular way.

Based on those described above, retail business managers could, therefore, ask themselves many questions on a daily basis like how to increase the profitability of their business venture or enter into new markets, develop their existing products or improve customer satisfaction. By answering these questions, it is envisaged that students graduating with an ND: RBM qualification should adapt better to the current and future fast altering working milieu as influenced by the Fourth Industrial Revolution (also referred to as Industry 4.0 or 4IR). Graduates with the required Wholesale and Retail Sector (WRS) creativity levels will be able to apply their creative problem-solving skills to overcome not only the technical challenges but expected changes in "merchandising, store design, customer interaction, supplier relations,

product specification and branding" (W&RSETA, 2017:61). They will, consequently, have to solve novel business problems better and more creative than their competitors, as explained in Section 2.2.4.

De Bono (1996) believes that the following three factors are the prevalent reasons for individuals not being creative but going about their daily activities:

- **Continuity of neglect:** This happens when there are no complaints or problems the way things are done, and complacency causes individuals to continue without change. Even in these circumstances, individuals could ask themselves: "Is there a better way of doing this?" The possibility of neglect would imply that even when nothing is wrong within a retail business, it is of importance to not become complacent. Retail business managers should still challenge the status quo to discover creative ways to improve the business.

- **Continuity of lock-in:** Often, management functions are controlled by rules, regulations, and their thought processes. De Bono (1996) uses the example of the QWERTY keyboard that was designed in the era of the typewriter. The objective was to reduce the typing speed as the mechanical typewriter could not cope with the higher typing speeds of skilled typists. With today's modern computer equipment, the keyboard has not changed.

  The same complacency is often observed in the retail business industry where management has the attitude of "Why fix things that are not wrong?" Traditional retailers have changed their core business from purely retail to also include financial services. An example is the many South African retailers (i.e., Shoprite Checkers, Pick n Pay, Woolworths, and The Foschini Group) that have grown from being a traditional retailer to now offering financial services as part of their core business.

- **Continuity of complacency:** "When things go wrong, we never challenge the central concept but look for all sorts of peripheral reasons why the concept is not working" (De Bono, 1996:111). Retail business managers often fail to challenge the way things are done as they believe that they will continue to do things the same way in future. These managers are trapped in this complacency, believing that "if something is not broken, don't fix it". It is essential that they do not become stagnant as future retail business managers. This approach will assist managers in being creative in their management roles, thinking, and evaluating their internal- and external environment to be more innovative in dealing with change.

Stemming from the above, it is evident that creativity is a diverse concept that cannot be accurately expressed in one concise definition. Creativity incorporates a process whereby an individual must be able to use various thinking methods to produce or create something new/unique of value, with passion and commitment. Several researchers (Bohm, 1998; Robinson & Aronica, 2015b; Barajas & Frossard, 2018) found it difficult to define creativity due to its complex nature, whereas others (Sternberg, 2001; Kim, 2006; Kaufman, 2015) found that creativity is closely linked with intelligence and wisdom, and Plucker et al. (2004) placed a bigger emphasis on the link between creativity and aptitude. Darbellay et al. (2017) introduced creativity, design thinking, and interdisciplinary application as the three critical factors for being creative whereas lateral thinking was described as another aspect of creativity by De Bono (1996).

2.2.2 Origination of creativity

Creativity can be traced back to ancient history. Numerous ancient civilisations have recognised and conveyed their mindset on creativity (New World Encyclopedia, 2018). Simonton (2001:3-4) takes the history of creativity back to where "Virtually all of the world's religious systems possess 'creation myths' in which one or more gods or divine beings demonstrate superlative creative powers" when referring to the Greek-, Egyptian-, Roman-, and Christian religions. According to Greek methodology, the Muses (inspirational goddesses of literature, science, and the arts) personified the arts and was seen as the inspiration during the creation process where humans improvised song, writing, creating traditional music and dance (Mojsik, 2008:67-76). The Egyptians are known for many things, like music, art, culture and most importantly, the pyramids that form part of the Seven Wonders of the Ancient World (Kortleven, 2019). However, the question regarding how the pyramids were built remains a mystery even today. How did the ancient Egyptians use 2.3 million building blocks of up to 2.5 ton per block to build the 4 000-year old pyramids? Kortleven (2019) opines that it was due to their creativity and inventiveness, which he believes are still eminent today in the way the Egyptians negotiate, dress, and even arrange parking in the busy streets of Cairo. On the other hand, the Roman empire was known for displaying their creativity through art, architecture, their well-established legal system, alphabet, and even their culinary skills (Cartwright, 2019).

A critical change in the thinking and understanding of creativity is embedded in the Christian religion. The prominent Christian writer, Saint Augustine, believed that out of Christian religion, the concept of creating and to be creative could be best explained (Albert & Runco, 1999). Creativity has been with humanity from the beginning of existence. According to Du Preez (2012), creativity is understood as Godly inspiration within the Jewish Cristian conviction and can creativity thus be traced back to the beginning of the world. The researcher believes that, in accordance with the creation scriptures in the Bible, God created the entire universe out of

nothing; thus, revealing His superior creativity – an unsurpassed example of creativity. The New International Version of the Bible starts with: “In the beginning, God created the heavens and the earth. The earth was barren, with no form of life; it was under a roaring ocean with darkness” (Genesis 1:1-2). This, in its purest form, is creativity. God created everything we know out of nothing. He personalised the creation to reflect His greatness through the size of the universe. Creativity should thus form an integral part of every person as God also created humans in his image, thereby instilling His creativity in every human being. Genesis 1:26 states: “Now we will make humans, and they will be like us” (Genesis 1:26). The inference could, therefore, be made that humans should be as creative as God. However, this study will attempt to point out that it is no longer the case. Humans can use different approaches and directions to be creative by using their senses, intellect, experience, and imagination.

The researcher further believes that God still inspires creativity through his Holy Spirit. God told Moses in Exodus 31:2-6: “See, I have called by name Bezalel, the son of Uri, son of Hur, of the tribe of Judah, and I have filled him with the Spirit of God, with ability and intelligence, with knowledge and all craftsmanship, to devise artistic designs, to work in gold, silver and bronze, in cutting stones for setting and in carving wood, to work in every craft. … And I have given to all able men ability, that they may make all I have commanded you” (Exodus 31:2-6).

From the above passage, it can be deduced that God instilled the knowledge, craftsmanship, and skills required for the building of the Tabernacle, and the capability “to devise artistic designs” through being filled (baptised) with God’s Holy Spirit. The Holy Spirit thus reflects God’s nature, including creativity, in humans. Creativity is thus about putting an individual’s ideas and imagination into reality. Like in the creation scriptures, God had ideas about what he wanted to create. He imagined the end product and created it. He brought His ideas to reality. We are, therefore, born creative. “Our natural creative genius is stifled from the time we are born” (Engels, 2017:1).

Treffinger, Young, Selby and Shepardson (2002) stipulate that the consciousness in creativity amid educators and psychologists is believed to have its origins in the mid-20th century when Guilford, an American psychologist and renowned author who did ground-breaking research on human intelligence, gave his presidential address in 1950 to the American Psychological Association, conveying the apprehension and hesitation amongst researchers to conduct research on creativity. His address was seen as the wake-up call for researchers to become more active in research on creativity. Simonton (2001) stipulates that Darwin’s[2] work proved that “the creativity of nature resulted from each organism’s individualistic struggle to survive and reproduce, nothing more. Creativity was thus granted a completely scientific explanation,

[2] Charles Robert Darwin was an English naturalist, geologist and biologist, best known for his contributions to the science of evolution.

albeit it was natural rather than human creativity that was being explained. Nevertheless, Darwin's landmark work provided a potential model for psychological creativity. According to Fritz (1994:11), "the most important developments in civilisation have come through the creative process, but ironically, most people have not been taught to be creative." "The world has long been fascinated by creative individuals – people who produce work that dramatically touches us aesthetically or advances our lives technologically. Sharing this fascination, creativity researchers have long paid careful attention to individual creativity, beginning with studies of well-known geniuses" (Amabile, 2017:2). Historically, various individuals have been responsible for significant occurrences of creativity that directly contributed to the progress of humanity. Ville (2011) uses the following examples regarding how individual creativity has led to progress:

- The introduction of steam power by Thomas Savey in 1698,
- Electricity introduced by Benjamin Franklin in 1752,
- The introduction of motorised vehicles by Karl Benz in 1879, and
- The development of information technology from the second half of the twentieth century.

Additional important developments include:

- Morse code created by Samuel Morse in 1835,
- The telephone created by Alexander Graham Bell in 1876,
- The first radio developed by Guglielmo Marconi in 1894, and
- The Mark 1, a five-ton machine, the first digital computer created by Harvard University around 1940.

The above examples all involve creative thinking as these are all new ideas that applied at the time and to human needs. It is thus recognised that creativity is the norm for the progress of mankind. It is, therefore, essential to note that creativity is linked to doing new things or doing things differently to ensure the improvement of mankind. Mason (2018) eludes on this view by specifying creativity as new ideas that are appropriate to the advancement of mankind. Mason linked creativity with originality and quality. Creativity, such as a new idea, method or a combination of ideas, must consequently be seen as valuable.

The prominence of creativity is much more than just finding new ideas or doing things differently. It incorporates the thinking process. Gabora (2019) argues that although new and useful products are often seen as a form of creativity, creativity has more value. The true meaning of creativity should incorporate the processes associated with creativity as "creativity involves cognitive processes that transform one's understanding of, or relationship to, the world" (Gabora, 2019:2).

Stemming from the above, it is evident that creativity will become increasingly vital for the WRS in the 21st century. Although online buying could influence this sector, creativity will become the differentiating factor for retailers to maintain/improve their market share and overcome the increasing global competition from foreign retailers entering South Africa. It is further believed that all industries, and especially the South African education sector, will be expected to improve the creative abilities of their employees and students in order to equip them with suitable creative skills that, in turn, will enable them to successfully address and manage complex business problems in the 21st century. The next section expands upon the importance of creativity in the 21st century.

2.2.3 Creativity in the 21st century

Industry 4.0 refers to "all disruptive innovations derived and implemented in a value chain to address the trends of digitalisation, autonomisation, transparency, mobility, modularisation, network-collaboration and socialising of products and processes" (Pfohl, Yahsi & Kurnaz, 2015:37). Industry 4.0 is a driving force leading towards unknown levels of globalisation and contributes to tautness between being optimistic/hopeful and ambiguity (Renjen, 2019). According to Renjen (2019), Industry 4.0 will impose unequalled business and social changes resulting in a skills gap between existing (old) skills and new (unknown) skills. Bridging this skills gap will force companies to first look at the development of existing staff skills, but business leaders often have diverse estimations and thoughts on which future skills will be most required.

Davis (2016), who serves as the Head of Society and Innovation for the World Economic Forum (WEF), explains that Industry 4.0 points to the arrival of cyber-physical systems and that this revolution will encompass Artificial Intelligence[3] (AI), resulting in innovative capabilities for both people and machines (Rouse, 2018). He further stipulates that this revolution will lead to situations where the gap between the richest and the poorest in the world will become even more significant – some countries are going to advance in technology and thus also financial gain, while others are going to fall further behind and lose out on the opportunities associated with Industry 4.0. The novel technologies associated with AI can also contribute to future gains for mankind in "profound ways (e.g., telemedicine, distance learning)" (PricewaterhouseCoopers (PwC), 2018:27). AI will contribute to the establishment of new industries and professions that would require individuals with more creativity to comprehend and facilitate the drastic changes businesses will experience (PwC, 2018). Industry 4.0 is a state in which manufacturing systems and the objects they create are not merely connected,

[3] Artificial intelligence (AI) is the "simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction" (Rouse, 2018:Online).

drawing physical information into the digital realm, but also communicate, analyse, and use that information to drive further intelligent action back in the physical world to execute a physical-to-digital-to-physical transition. In other words, Industry 4.0 makes it possible to manufacture entirely new things in entirely new ways and revolutionise supply chains, production, and business models (Sniderman, Mahto & Cotteleer, 2016:7).

However, some influential businesspeople have expressed their concerns regarding the impact of Industry 4.0 on employment throughout the world. PwC (2018:27), the second-largest professional services firm in the world that is considered one of the Big Four accounting firms, suggests that AI is a "clear risk" as it "may displace more and more of the human workforce". Elon Musk, a technology entrepreneur, investor, and engineer (cited by D'Angelo, 2017:3), refers to AI as a "fundamental risk to the existence of human civilization." Musk (2017:online) warns that AI is "rapidly developing but is still far from the powerful, self-evolving software, but has become an integral part of our everyday lives". He mentioned how Facebook uses AI for targeted advertising, photo tagging, facial recognition, and curated news feeds. Microsoft and Apple use AI as the driving force behind their digital assistants, Cortana and Siri, and Google's search engine is also dependent on AI. All of these seem like insignificant developments, but it gradually leads to the creation of flexible, self-teaching AI that will mirror human learning. There is tremendous potential to develop the working environment and assist the progress of humans using AI, but it can also grow beyond human capabilities that could trigger world wars (Holley, 2018). Even the world-renowned scientist, Steven Hawking, warned humanity of the dangers of AI. According to Higgins (2000), Hawking warned that AI is eventually going to outsmart humanity. His concern was that AI would be focussed on achieving results and its goals, but what will happen if humans come in the way of AI?

It seems that, in the near future, AI will make decisions on behalf of humans and will become more and more self-reliant. Business managers, more specifically retail business managers, will have to manage this new type of working environment besides the foreseeable problems that the South African WRS could face which, in turn, could result in job losses (in the light of the current high unemployment rate in South African stakeholders' drive for profits, insufficient skills labour force, and more practical problems related to the direct impact of AI on customer relations, employee relations, job structure, and job structure/content changes). These advances in AI result in various concerns as questions are raised around its accountability and responsibility. Sofia, the world's first AI humanoid, became a full citizen of Saudi Arabia, and although Sofia's citizenship was for publicity, it raises pertinent questions regarding the future of AI-driven humanoids. What does it mean for a humanoid to have full citizenship? What rights do Sofia now have and what are the guidelines for the development of future humanoids – should they all be granted citizenship? Jones (2017) discusses the expected growth of humanoids and opines that by 2023, various industries will require ten times more humanoids

to fill positions in, for example, call centres businesses, delivery services, police- and traffic services, as well as the retail-, production-, medical-, and financial sector, among others. Some AI-driven robots are already being used as customer assistants. The first South African humanoid, Pepper, was introduced by Nedbank's digital branch, the NZone, as part of the Industry 4.0 drive towards digital solutions for companies and the Internet of Things[4] (IoT) (Alfreds, 2018).

A further concern associated with Industry 4.0 involves the impact that AI is going to have on creativity, employment, careers, and jobs. It is envisaged that the new generation of AI-driven computers, robots, and even humanoids like Sofia and Pepper, will not only work faster and be more effective with fewer mistakes than humans but will also change existing jobs and make many positions redundant (WEF, 2016). Marwala (2019:Online) explains that South Africa and the rest of the world are now experiencing the influence of Industry 4.0, which is beyond any previous "digital or information revolutions". Arguably, the first and most critical factor for the South African economy is regarding the impact that Industry 4.0 will have on its workforce. Taking into consideration the current high unemployment rate and unskilled labour force in South Africa, AI could have a devastating effect on the country's economy as it could result in massive job cuts and an increased unemployment rate. Pick n Pay, the second-largest supermarket chain store in South Africa, implemented a trail for self-service pay points at its Observatory branch in Cape Town. These pay points allow customers to scan their purchased products themselves and pay for the products through typical card payment methods, thus not requiring a dedicated employee to man every individual pay point. Labour unions immediately raised its impact on employment as they were up in arms against the implementation of this technology due to the effect it will have on employment within the company. Standard Bank, a South African financial services groups and Africa's biggest lender by assets, announced a new banking delivery model in March 2019 that they will be implementing. As a result, they will be closing 104 branches affecting 1 400 jobs. The decision to close the branches was based on the "changing needs" and the "rapid adoption of digital banking options" by its customers through available applications on their smartphones. The bank deems its new digital "banking delivery model" more affordable and accessible. (Fin24, 2019:Online).

Although many of the future scarce skills will be focused around new technologies, there will be a more considerable skills demand for skills such as "creativity, originality and initiative, critical thinking, persuasion, and negotiation" (W&RSETA, 2017:9). Supplementary critical human skills will include, for example, "attention to detail, resilience, flexibility, complex

[4] "The Internet of Things (IoT) refers to the billions of physical devices around the world that are now connected to the Internet, collecting and sharing data. This adds a level of digital intelligence to devices that would be otherwise dumb, enabling them to communicate real-time data without a human being involved, effectively merging the digital and physical worlds" (Ranger, 2019:Online).

problem-solving, emotional intelligence, leadership and social influence" (W&RSETA, 2017:10). The importance of developing creativity is to emphasise, not only as a scarce human skill, but also the ability to identify, analyse, and creatively solve the extreme expected change drivers that humanity will face due to Industry 4.0 (D'Angelo, 2017). New technologies will cause 44 per cent of existing/current positions to change drastically by 2025 (WEF, 2016). The world is thus going to experience unprecedented change at all levels at a tremendously fast pace. Land (2011) presented a TEDx talk and confirmed that "we are now facing a period in history where no institution is not facing profound turbulent and unpredictable change, and that's everywhere in the world". He specified that the only way for any business to succeed in this volatile environment is to use creativity to become a truly innovative company and to remain a continuously innovative company.

Retail businesses across the world have also come to understand the importance of creativity in maintaining their market share. Trotter (2018) concurs by stating that the retail sector is undergoing a period of volatile and rapid change. Binlot (2018) explains how Nike, an American multinational corporation that is engaged in the design, development, manufacturing, and worldwide marketing and sales of footwear, apparel, equipment, accessories, and services, understands the critical shift in the retail industry – where customers previously visited brick-and-mortar locations they are now looking for an experience, not just a place where they can buy merchandise. Binlot (2018:Online) quotes Andy Thaemert, Nike's Senior Creative Director, who said: "What we wanted to do is respond to the idea that all retail is moving from transactional to experiential".

Stemming from the above, it is clear that Industry 4.0 will have an immense impact on employment. The WRS will be significantly affected by Industry 4.0 as it will influence employment levels, various jobs, as well as how companies will conduct business in the future (moving from a transactional- to experiential retail experience). Current jobs will change or could even become redundant, and graduates will have to use their creative skills to adapt themselves and their businesses to new knowledge working environments. The WRS is moving from a brick-and-mortar transaction-based industry to a customer experience-driven industry. The value of creativity is thus eminent for individuals and the WRS from now and beyond. It is, therefore, critical that the development of creativity should be considered as a significant skill for WRS managers and should thus be a fundamental constituent of the ND: RBM offered at the CPUT.

2.2.3 Benefits and barriers of creativity

The 2010 IBM global CEO study surveyed more than 1,500 Chief Executive Officers from 60 countries and 33 industries worldwide and found that companies will experience drastic

changes in terms of the way they structure their business operations for the future that will require new knowledge jobs to obtain higher profitability and more effective products and services (Palmisano, 2019). Results have shown that creativity will be the most prominent skill required to survive the impact of Industry 4.0. The main challenge will, therefore, be to obtain employees with the necessary skills to perform these new tasks.

The WEF (2019:Online) emphasises the importance of creativity for the following reasons:

- **Creativity is good for the economy:** Creative economies are thriving; the United Nations reported that from 2002 to 2015, the global creative industry has doubled in size from $208 billion to $509 billion. These creative markets are dominated by design industries, fashion, and the movie industry, arts and crafts, creative-digital ecosystems, publishing, and performing arts.
- **Creativity is good for the environment:** Creativity is used to find solutions to save the planet and inspires a new generation of researchers to find solutions for the protection and sustainability of natural resources.
- **Creativity is essential for leadership:** Creativity is regarded as the most critical skill required by leaders.
- **Creativity is crucial for future work:** The future knowledge worker will require skills such as “creativity, innovation and ideation.” These soft skills will be required to be applied together with analytical thinking and problem-solving.

According to Robinson (2019), Darbellay et al. (2017), Duckworth (2018), and TeachThought (2019), creativity has the following key benefits, especially in an educational environment as graphically depicted in Figure 2.2 (overleaf):

- The capability to take full advantage of prospects of the “new global economies” as populations will become a more flexible and pliable workforce.
- Expand the “motivation and achievement levels of pupils and students”.
- Superior levels of creativity can boost the establishment and effectiveness of a lifelong learning culture.
- The lifelong learning culture will cultivate enhanced, motivated, and proficient expert teachers, lecturers, and youth workers.
- Creativity is multidisciplinary.
- Creativity allows self-expression: Creativity allows self-discovery.
- Creativity promotes thinking and problem-solving.
- Creativity reduces stress and anxiety: Creativity can act as inspiration and instils a sense of contentment amongst creative individuals.
- Creativity allows individuals to enjoy what they are doing: Creativity contributes to individuals’ sense of enjoyment and well-being.

- Creativity provides a sense of purpose: Creativity, through creative thinking, provides creative individuals with a way of processing the world they function in, thus describing who they are.
- Creativity leads to a sense of accomplishment and pride: Completing the creative process results in personal satisfaction, pride, and a sense of accomplishment.
- Creativity links individuals with the same passion: Creativity can establish a creative culture among students with the same passion for creativity.
- Creativity leads to improved focus: Creativity requires commitment and dedication that results in creative individuals being more focused on the task at hand.
- Creativity promotes risk-taking and iteration: Creativity requires courage, confidence, and the willingness to fail and try again.
- Creativity is a prerequisite for innovation: Creativity is the basis for mankind's advancement, which is only possible through imagination and creativity.
- Creativity encourages lifelong learning: Creativity requires humbleness and the understanding that there is always room for improvement. Commitment to continuing challenging ideas and abilities results in growth and development.

Figure 2.2: Benefits of creativity

Source: TeachThought (2019:Online)

Despite the various benefits that creativity offers to individuals, organisations, education, and nations, there are several barriers that creativity needs to face. Hilala, Husinb and Zayeda, (2013:54) describe barriers to creativity like stumbling blocks that "impede the performance of

creativity skills". These stumbling blocks differ based on the "environment, individual personality, situation, motivation, and cognitive development". They stipulate that "everyone is creative by birth, but the external agents destroy" their creativity and "creativity gets killed much more often than it gets supported". Amabile (1998) found that due to modern-day pressure for meeting necessities such as coordination, productivity, and control, managers often ignore the importance of creativity. She found that in order to reach these imperatives, managers "may be inadvertently designing organizations that systematically crush creativity" (Amabile, 1998:77).

Scott (2019:Online) describes the barriers of creativity as the "seven habits that kill creativity". These habits include and apply to the WRS in the following manner:

- WRS managers often focus too much on their logical thinking; "logic stifles creativity and blinds individuals to essential insights from different kinds of analyses".
- Due to time constraints, WRS managers could fall in the habit of implementing the first possible solution to a situation; however, this habit kills creativity as finding a single solution to a problem is considered only the beginning of a longer creative thinking process where more options are identified and considered for implementation. However, for many WRS managers, a single solution is the end of their (creative) process.
- WRS managers believe there is only one correct solution to a situation; this could be the result of our education system. "The idea that it's better to memorize correct answers than look for them yourself, is deeply ingrained in the minds of many professionals". The challenges facing WRS managers, as identified by the W&RSETA (2016) skills plan, is an indication that considering a single-minded approach to these problems will be limiting the success of the WRS as a whole.
- The W&RSETA (2016) skills plan also identified a shortage of expert knowledge. As Brookhart (2013) indicated the importance of knowledge in the creative process, it can be concluded that due to the knowledge shortage, creativity levels of WRS managers are reduced/limited.
- The opposite is also true, the WRS (with too much expert knowledge due to years of experience) might find themselves in the environment where they are "convinced that they know everything there is to know about the [retail business management] field, thus limiting themselves to experience only one side of the industry". This will build a scenario where numerous creative ideas that could open new prospects for WRS businesses are lost.

- Industry 4.0 will provide WRS managers with vast amounts of real-time data which could lead to overwhelming data dependency. WRS managers should “ask for just enough information and allow themselves some space for creative thinking”.
- WRS managers often “feel they have no creative bone in their bodies. The truth is that everyone has a potential for creativity”; however, WRS managers “should make a [conscientious] decision to make creativity part of their daily lives”.

Hilala et al. (2013:55) expanded on the above list by adding the following barriers to creativity:

- **Learning and habit:** WRS managers do things the way it has always been done and do not consider doing things the way it should be done due to the impact of factors such as Industry 4.0 etc.
- **Rules and traditions:** No organisation, business, country or educational system can function without rules and regulations. However, these rules, regulations, and even bureaucratic policies could become stumbling blocks that prevent or slow down the development of creativity.
- **Perceptual barriers:** Because creativity is such a diverse topic, people have their own perceptions, ideas, and meanings with regards to creativity. “Such predisposition to perceive things in certain ways is a perceptual set, a mental set, or functional fixedness” and is a barrier to creative thinking because “decisions and conclusions can be made hastily” without looking at all the available alternatives.
- **Cultural barriers:** These barriers exist due to “social influence, expectations, conformity and pressures to adhere to norms”. Cultural barriers relate to how people think, behave, and have reservations of being diverse.
- **Emotional barriers:** These barriers are linked to human emotions such as love, fear, anxiety, anger, happiness, sadness and contempt that could affect the creative process.
- **Resource barriers:** Insufficient resources, such as a shortage of staff, finances, supplies, equipment, and information, could hamper creative processes.

Gibson (2005) believes that fear is the most critical barrier to creativity. “Fears comes in many forms. Psychologically the fear of self-expression or the judgment of others can severely limit our creativity. Physical fear can also limit our responses, imaginings, risk-taking behaviours, and production as we are more concerned with mitigating the cause of that fear and in seeking equilibrium and safety. We can even block ourselves with self-imposed fears of failure” (Wilson, 2020:Online).

Fear encompasses aspects like fear of:

- decision making,
- mockery,
- failure,
- making mistakes,
- risk taking and the unknown, and
- not being considered for promotion into higher levels of management.

The fear experienced becomes so strong that an individual will not consider creativity as an option to find alternative/new solutions to the problem/situation. Fear will thus keep the individual from exploring new ways of doing business, resulting in the individual becoming stagnant and unwilling to embrace change through lateral and diverse thinking. Furthermore, the individual will not exalt energy to develop creativity as a critical skill for solving the complex business problems companies experience due to Industry 4.0 (Gibson, 2005).

Fear of failure is part of human nature and is often strengthened by convert education. Failure is linked to human emotions and past experiences where mistakes made by individuals were pointed out (often in front of the rest of the class). Failure is also a painful experience as failure is deemed as negative and not a growth opportunity.

From the above, the inference can be made that barriers to creativity will result in companies and individuals stagnating and not reaching their full potential, missed opportunities, loss in production/productivity, financial losses, time-wasting, and micromanagement. It is, therefore, crucial for individuals to develop their creative skills and use these skills efficiently to overcome the barriers of creativity.

2.3 CREATIVITY IN EDUCATION

Creativity has been with us since the beginning of time, but how did it become such an important educational factor? Purely defining creativity is a troublesome task, especially when it requires implementation within an educational environment. Maxwell, Chief Executive: Education Scotland, states that the incorporation of creativity into education is not as simple and straight forward, because creativity is a skill that can be applied to a variety of situations. “Creativity draws together knowledge and insight from diverse areas of learning, combining them in truly inter-disciplinary ways” (Scotland Department of Education, 2013:3). This statement emphasises the enormous challenge faced in this field of study when attempting to incorporate creativity into an educational system. Robinson (2006), author and international speaker on creativity, concurs that education systems comprehend and acknowledge the necessity for change with regards to the amalgamation of creativity in their curriculums. More countries are now presenting creativity skills development as part of their core curriculums

(see Section 2.3.2.1, Table 2.1). Robinson (2006:Online) states that “creativity now is as important in education as literacy and we should treat it with the same status”, but creativity is not alternatives to literacy and numeracy. High standards in literacy and numeracy should be maintained. Creativity, literacy, and numeracy should not be seen as contrasting one another, but as complementary abilities (Ireland Department of Education, 2019).

Creativity is much more and has a more profound impact as purely a new product or service, novice consideration or a combination of existing ideas. Creativity could enhance the self-reliance and self-confidence of individuals and could even affect their methods of learning and skills development (Mason, 2018). As established above, creativity skills can be acquired through learning. Individuals can become more competent in, for example, creative decision-making, problem-solving, and new idea generation through gaining an understanding of knowledge through their thoughts, experiences, and senses. Developing creativity skills could thus involve acquiring knowledge through experiences (bumping your head against a low cupboard door), study (a formal qualification in RBM) or being taught (on the job training and development). This explanation, therefore, endorses the importance of creativity and education. Creativity cannot be seen as an unconnected skill like painting or kicking a rugby ball. Creativity includes the identification of, finding suitable alternative solutions for, and implementation of actions to solve the unique business problems experienced by modern-day businesses. These skills, as identified by the W&RSETA skills plan (2016), are essential for future WRS managers and could include unravelling a novice and unique problem for a customer, altering products/services to meet the need of a customer better, and coming up with resourceful strategies for overcoming the Industry 4.0 impact on businesses and developing the business to the next level. Therefore, it is essential to not only incorporate creativity skills development as an integral part of the ND: RBM qualification but to ensure that there is an open-minded creativity skill development plan within the qualification. This will develop the creativity levels of first- to third-year students to ensure that they can effectively apply their creative skills in solving the novel demanding challenges that businesses face.

Shaheen (2010:166) contribute the link between education and creativity to the launch of Sputnik 1 that triggered a “national panic, not simply over a looming Cold War but about the purported failures of the US education system”. The fact that the Soviet Union was leading the space race reflected badly in intelligence provided to President Eisenhower, who was under the impression that the United States of America (USA) was in the lead in terms of science and education. The President believed that Sputnik was a reflection of failure for the western nations’ engineers, specifically their creative ability to compete with the Soviet Union. He could not convince the public otherwise, and one year later, in 1958, Eisenhower signed into law the National Defence Education Act (NDEA). This act (United States of America: Congress, 1958:1580) was described as the cornerstone of the Eisenhower administration. The main

objective of the law was to “strengthen the national defence and to encourage and assist in the expansion and improvement of educational programs to meet critical national needs, and for other purposes.” Additionally, the law also made provision for extensive funding to reshape the USA’s education system. This massive USA governmental investment, mounting in excess of $300 million over three years, was a defining moment to incorporate creativity in education. It is an indication of the urgency and importance President Eisenhower’s administration placed on creativity to solve complex matters facing the USA. Watters (2015:3) describes that the objective of this act was to “give education technology in particular not only funding and legitimacy but its ideological mission: a corrective to progressive education in the name of national security and science”.

Since the NDEA, “several waves of creativity in education” have hit the world (Shaheen, 2010:167). The current wave can be attributed to the need for education to meet the demands from various areas such as society. Creativity is required in countries to sustain their economies through higher employment levels (thus alleviating poverty) and, in the South African context, to cope with increased competition from a global perspective. South Africa should thus release the importance of incorporating creativity as an essential inclusive educational contributor to, like other countries in the world, ensure nation-building. This would enable South Africa with its rich heritage of diverse cultures, histories, languages, and religions, to become a truly united nation that can survive in the international arena, build capable human capital, build wealth, and foster unity.

There is great uncertainty regarding how jobs will be affected, and as such, educators should be prepared to introduce students to more up-to-date methods to develop their skills, especially their creativity skills to assist them in being more flexible in their comprehension and accomplishment of tasks (Robinson, 2006). Considering that current first-year students will only be retiring around 2065, even existing business leaders have no idea what the WRS is going to look like in five years and, needless to say, knowing how the sector will function in 2065. The question is thus raised whether education systems around the world perceive creativity to be as significant as literacy. It seems not to be the case since Weicht (2018:Online) found that the intelligence quotient (IQ) scores of students in a typical Western education system have increased since 1990, but that “creative thinking scores (and often the emotional intelligence (EQ) scores) have significantly decreased”. Weicht (2018:Online) also cited results from a National Aeronautics and Space Administration (NASA) study that indicates that education systems “dumbs down the creative genius that we were born with.” This highly specialised but elementary creativity test was designed by Land (2011) to identify the creativity levels of NASA employees. According to Land (2011), humans are born creative geniuses but do not remain creative geniuses. When the test was completed by 1 600 children between the ages of 4 – 5 years, 98 per cent of the children fell in the genius category for imagination.

When the same group of children were tested five years later, only 30 per cent remained in the genius category. Testing the same children at age 15 revealed that only 12 per cent remained in the genius category, and among adults, only two per cent remained in the genius category. Land (2011) attributes the reduction of geniuses to the way adults think, which is a result of how the education systems taught students to think. Results show that the genius children used two types of thinking, namely divergent thinking and convergent thinking. Divergent thinking is what assists with imagination, thus generating new ideas. Diverge thinking acts as the accelerator in a car. Convergent thinking is where individuals make a judgement, decision, test something, criticise or evaluate. Converge thinking acts as the brake of a car. So, what happens with the genius children? Land (2011) explains that we teach them in school to think divergently and convergently at the same time.

Consequently, while identifying options to a problem through divergent thinking, convergent thinking is already evaluating, analysing, applying, and reaching conclusions. Through convergent thinking, many options in the creative problem-solving process are eliminated as these alternatives are rejected before they are thoroughly evaluated. The alternatives are for example seen as too costly, too long a process, not the correct time to implement or something that was already tried. Convergent thinking as a teaching method causes children to lose their creativity.

Many educational systems, including educators, now recognise the importance of creativity (Mason, 2018). “In the current millennium, the focus has shifted towards understanding creativity as an emergent phenomenon that builds on what has gone before and arises from ongoing interactions, a perspective that considers the part social context plays in the genesis of ideas” (Mason, 2018:12). However, the question remains whether creativity is prioritised and formally evaluated. Fjortoft (2018) opines that one of the challenges faced by educational institutions and educators is the ability to prepare students to be creative. Educators should use creative thinking as the basis for creative skills development, and this could be obtained through the development of assessment methods, like brainstorming, case studies, class discussions, and assignments that require students to “use divergent and convergent thinking”. This will ensure that graduates’ creativity skills are better developed, thus ensuring improved engagement in creative- and innovative activities through their creative thinking to optimise opportunities for more effective ways of accomplishing goals and objectives associated with the ND: RBM.

Educators often have biases against creative students, fearing that creativity in the classroom will be disruptive. They devalue creative personality attributes such as risk-taking, impulsivity, and independence. They inhibit creativity by focusing on the reproduction of knowledge and obedience in class. Albert Einstein, a world-renowned physicist and Nobel Prize winner, said

that “Creativity is intelligence having fun.” This proclamation appears to associate creativity with intelligence as confirmed by Boden (1998:349) who defined creativity as “a fundamental feature of human intelligence in general.” Creativity is consequently vested in everyday life activities that could include “the association of ideas, reminding, perception, analogical thinking, searching a structured problem-space, and reflecting self-criticism.” Mason (2018) established that the creative competence of individuals is linked to some critical skills as well as experience. These critical skills consist of the “mental flexibility to think outside the box, the ability to withhold judgment regarding the issue, to shift perspective onto the existing problem, to redefine the situation/problem to make better sense of the problem and find the most suitable solution and to tolerate ambiguity” (Mason, 2018:15). Mason (2018) concludes that other skills, such as creative- and lateral thinking, are crucial skills that can be taught. This is a critical statement for the purpose of this study as it can be concluded that creativity as a skill can be acquired through and within education.

With regards to experience, it is suggested that creative people understand the influence and impact the relevant experience has on creativity. Mason (2018) states that creative individuals use their knowledge, gained through experience, to not only solve complex business problems better than a novice person with no experience but are also better equipped to identify emerging problems. It is understood that skilled individuals structure their elucidation and understanding of a situation through their knowledge and experience better than a novice. Through skills and knowledge gained, individuals become experienced individuals who can interpret, comprehend, and act on situations quicker than a novice would be able to do.

Stemming from the above, it is evident that creativity should be a vital- and integral component of any education system throughout the world and not be ignored by educational institutions and educators. Creativity skills can be developed from an early age and should, therefore, be incorporated at all educational levels. Creativity skills are especially critical to the South African WRS as it was identified as one of the key shortages in the retail industry. Consequently, the ND: RBM incorporated creativity as a critical outcome in the qualification to ensure the proper development of students’ creativity levels that will allow them to address complex business problems and adapt to a rapidly changing business environment.

2.3.1 Requirements for education to incorporate the development of creativity

Although creativity is crucial for humanity to survive Industry 4.0, it should be implemented on a “buy-in” principle. It should thus not be enforced through an education law, but through interaction, development, and collaboration within the education spectrum of South Africa.

The interest in the development of creativity has grown recently. Sir Ken Robinson’s (2006) popular TED talk “Do schools kill creativity?” has been watched 56 million times. Robinson

(2019:Online) delivered a keynote address on “Revolutionising Education from the Ground Up” and postulated that modern-day education systems were “never designed or intended to cultivar the great array of individual talent”. Many of the current education systems in both developed- and developing countries are based on the requirements of 18th-century industrialism. The 21st century educational needs across the globe have changed severely and are going to change even more radically and faster due to Industry 4.0. With this in mind, it is concluded that many of the current education systems in the world (including South Africa’s) are catastrophically ill-equipped for meeting the demands of Industry 4.0. This causes business and individuals to lose trust in education systems.

In the 1960s, less than five per cent of people went to college. This has changed to where higher education is now an expectation as part of education, and one in two people enter higher education. Robinson (2019: Online) provides three reasons why current education systems are failing on the individual [creativity] development of students:

- **Conformity** refers not to the human behavioural aspect, but it is the procedures used in the education systems such as access to education, including selection on past performance, progress in the education system, curriculums, and assessment methods. These embedded structures are designed around the misperception that intelligence is an indication of talent. Meeting specific academic minimum standards would then provide access to higher education and then eventually a qualification. “The greater part of human intelligence is richer and goes beyond the rather strict confines of academic work. Human intelligence isn’t marked by conformity, naturally it’s characterized by diversity”.
- **Compliance** refers to the methods and processes used for assessing students to determine how applicable the assessment methods are regarding what should be tested.
- **Competition** refers to achievement that is driven by collaboration achieving the same goals/objectives together. An education system should be adapted to accommodate the diversity of students, focus on the development of individual creativity, and build collaboration. However, current outdated education systems do not consider these factors as critical outcomes and as such penalise all three of those mentioned above.

According to Sahlberg (2012:5–9), these problems have been highlighted by the Global Educational Reform Movement (GERM) since the 1980s. GERM has identified the following five global factors in education; all of these factors are pertinent to the way the ND: RBM is currently presented:

- **Standardisation**: Based on a method where the qualification is presented with a view that “setting clear and sufficiently high performance standards for the educators and the students will improve the quality of expected outcomes, but these outcomes are based on pure test-based accountabilities”.
- **Focus on core subjects:** Focus only on the key subjects that educators, industry, and other policymakers believe are important for the qualification.
- **Low-risk ways to reach learning goals:** This factor minimises experimentation, reduces the use of alternative pedagogical approaches, and limits risk-taking in the classrooms.
- **Use of corporate management models:** Educational policies, systems, and ideas are driven and controlled by “national hegemony and economic profit, rather than by moral goals of human development”. The ND: RBM qualification requires a minimum number of students to be offered and often students with lower academic abilities and less than the required interest in the retail industry are accepted into the qualification purely to obtain the required enrolment numbers.
- **Test-based accountability policies:** Student acceptance into the qualification is largely based on Grade 12 test results. The effectiveness and success of the entire qualification are based on the throughput rate of the students that is linked to financial government subsidisation. Expected success rates are used as an indicator of educator effectiveness.

The question, therefore, remains regarding what education systems teach currently? As many of the education systems in the world have been established to teach knowledge for the industrialisation of the 1800s, they have not moved away from knowledge-based education. Einstein (1931) said that “Imagination is more important than knowledge”.

Robinson (2019) continued by defining the following as options to move education systems away from knowledge-based education:

- **Enable students to understand the world around them.** This option requires a comprehensive curriculum to develop student understanding of human affairs (including the understanding of human interaction and experience of the world around them), culture (interaction, understanding, and collaboration among different cultures/humanities), and arts. A broad-based curriculum will focus on addressing these factors as critical outcomes and not only on teaching standard subjects like science and mathematics.
- **Enable students to understand the talents within them.** The objective is for students to understand themselves before they can understand the world around them. Getting to terms with their own passions, capabilities, competencies, possibilities, and

understanding what drives them and how to creatively apply themselves to the challenges experienced in the world around them. This will enable students to become "fulfilled individuals and active, compassionate citizens".

Robinson (2019:Online) concluded by stating that education should focus on "those things which are distinctively human; the power of curiosity, of creativity, of compassion, of collaboration, of historical understanding and of cultural empathy" and make them critical outcomes of modern-day education systems. It can consequently be determined that through the inclusion of these factors in an education system, the graduates from such an education system will be more rounded individuals that are much better prepared for the fast altering workforce required to overcome the impact of Industry 4.0 (Weicht, 2018). This emphasised that the most critical modification factor for the development of creativity is to base the education system, but more specifically, the ND: RBM qualification, on a student (not an educator) constructed method. This will include a much more comprehensive curriculum that does not only focus on outcomes associated with industrialism but will ensure the nurturing and identification of true creativity and talent of each student.

The objective to move from a knowledge-based education system to focus on the individual developmental needs of students was recognised by Sahlberg (2012) who provided the following guidelines to create a productive learning environment:

- Build an environment where there is high self-assurance in and support for educators as professionals in what they do and set out to achieve.
- Encourage an environment where educators and students can try new ideas and approaches, thus challenging educators to use different teaching- and assessment techniques and students to be more inquisitive about their studies which, in turn, prompts their imagination and creativity.
- Develop a teaching and learning environment that pursues a joyful education experience that develops a whole, fully-rounded student and does not only focus on knowledge education.

Some developed counties identified the importance of moving towards a student-driven education system and specifically saw the need for incorporating creativity as an essential factor in education. The question was raised on what such less knowledge-based education systems should look like. Robinson and Aronica (2015b) evaluated the context of education, what it is, and its impact on creativity. It was concluded that learning is the process humans use to acquire new knowledge and skills and that human beings are extraordinarily inquisitive learning creatures. The progression of learning is instigated from the instant a human is born. Young children have an insatiable enthusiasm for knowledge; however, Robinson and Aronica

(2015b) raised the concern that this appetite for knowledge starts to dull as they go through school. They contend that this is an outcome of the formalised school curricula used worldwide that does not allow students to use and develop their creativity. They further reason that even pre-school children are cast into the norms and criteria of a conventional educational curriculum. If children do not listen and follow instructions, they are perceived as troublesome.

Even supposing creative activities such as drawing or colouring in could impede the creativity of students as educators often prescribe how these activities should be completed. An example of what ought to be a creative activity could be the simple instruction to only colour in between the lines of a picture and colours should match the norms and standards expected set by the curriculum. This removes the ability of children to use their creativity beyond just the empty picture. Creativity could result in individuals using the entire page as a canvas and using creativity in playing with colouring objects differently like green clouds or a blue tree. It was concluded that the development of creativity should be the key factor to drive the transformation of education curricula, -systems, and -delivery methods.

Sternberg and Williams (1996) established that being a role model for students is the paramount technique for developing creativity. This statement validates the importance of role models in any education system as children cultivate their creativity through following role models they experience and observe and not necessarily what they are told to do. Sternberg and Williams (1996) further declared that a critical factor contributing to humans not achieving their full creative potential is primarily because creativity is not adequately cultivated or developed from early childhood. This is attributed to the current education systems not realising the value of cultivating imagination and creativity in a child's education.

It can thus be concluded that the traditional educational curricula and educational establishments necessitate transformation and acclimatisation to be responsible for providing students with the vital skills, knowledge, and competencies necessary to creatively deal with unique and complex WRS business problems. Students, therefore, require exceptional creativity- and problem-solving skills to be successful in the retail industry. Skills development should commence from a young age to ensure that the creative potential of children is cultivated, developed, and measured to reach their full creative potential. However, it is essential that the assessment tools being used must be appropriate in what they measure.

Beghetto (2005) raised the question of whether assessment kills student creativity. He agrees with the argument that all students have the potential to be creative and contribute the reason for so many students not fully reaching their creative potential on the assessment methods within the education systems. Often the assessment methods preferred are standardised to measure knowledge "absorption". Furthermore, the question could be asked whether a myriad

of other demands marginalises the instruction (time that should have been used for the development of creativity). Assessments per se do not necessarily kill creativity, but students' understanding of the assessment process, including the assessment goals and assessment practices, will determine their motivation and attitude toward the assessment process and the demonstration of their creativity. Beghetto (2005:259–261) suggests the following key points to minimise the negative impact of assessment on creativity:

1. **Minimise social comparisons**: Creativity is nurtured when students are focused on using assessments for self-improvement. This will encourage students to take risks and pursue and persevere the challenges associated with assessments.
2. **Minimise the pressure of assessment**: If students experience too much pressure (high stress levels) due to the assessment process, their willingness to demonstrate their own creativity will decline.
3. **Focus on informational aspects of assessment**: The marks (results) obtained should be informative and useful. By simply explaining the mark allocation and assessment criteria, the students obtain “useful insights from assessments”.
4. **Recognise risk-taking and creative expression**: Paying attention and recognising when students express creativity in assessing students will increase their willingness to develop and apply their creativity through divergent thinking and risk-taking which, in turn, will result in students becoming comfortable and motivated to demonstrate even higher levels of creativity and risk-taking.

It could, therefore, be argued that all people are creative, but the education systems in many countries, including that of South African, are not geared to develop the creative skills of their students. Educators often oversee creativity because they do not have the necessary skills, flexibility or capacity to incorporate or evaluate creativity within formal education systems.

2.3.2 Empirical research on creativity in education

2.3.2.1 Creativity in developed countries

Some countries have identified the value associated with creativity by writing policies and procedures for their education systems (Shaheen, 2010:167). Many have developed and implemented drastic measures in their education systems to improve the development of creativity. Table 2.1 (see overleaf) summarises how various developed countries around the world encompass creativity in their education structures. This provides a vital global perspective of how creativity is incorporated in education in developed nations.

Table 2.1: Developed countries – creativity in education

Country	Description
Australia Education.sa.gov.au (2019:Online)	"Critical thinking is at the core of most intellectual activity that involves student learning". The second educational goal listed is creative thinking that involves teaching students how to generate and apply new ideas in specific contexts. The objective with creativity is to ensure that students become self-reliant and creative individuals through critical and creative thinking. The Australian curriculum focuses on developing the capabilities of students in critical and creative thinking as they learn to: • generate and evaluate knowledge • clarify concepts and ideas • seek creative possibilities • consider alternatives • solve problems
Canada Boudreault, Haga, Paylor, Sabourin, Thomas & van der Linden (2014:3)	The rapid technological and geopolitical developments drove changes in the Canadian education system. This was achieved by changing the education "emphasis from the instruction of facts to a model which focuses on competencies". The competencies identified as being crucial include "critical thinking, character, creativity, innovation, communication and collaboration as well as digital and computer literacy". These competencies were deemed crucial to prepare students for "jobs that have not been created, technologies that have not yet been invented and problems that we don't yet know will arise". To ensure that the objectives are met for developing these competencies, students are asked a series of questions to gauge the emphasis of creativity in education. The Canadian education system demarcates creative thinking as the most critical and essential learning outcome of education for the 21st Century.
China Secretary-General of the OECD (2016)	Creativity in China has become the priority of education since 2001. The curriculum focuses on the following six objectives: 1. Moving from a narrow perspective of knowledge transmission to learning how to learn and develop positive attitudes amongst students. 2. Create a balanced, integrated selective curriculum structure and moving away from a subject-centred curriculum. 3. Building a curriculum on the principle of lifelong learning through essential knowledge and skills. 4. Moving to an active, problem-solving learning style to develop students' ability to process information, acquire knowledge, solve problems, and learn cooperatively. Problem-solving and the application of knowledge in real-world situations are included in new textbooks, resulting in a greater emphasis on using creativity and practical ability. 5. Doing away with the standardised method of evaluation from the traditional narrowly summative assessment (e.g., examinations for the certificate of levels of achievement and selection) to more formative purposes such as the promotion of student growth, teacher development, and instructional improvement as additional functions. Changing from centralised curriculum control to a joint effort between the central government, local authorities, and schools to make the curriculum more relevant to local situations.

	These objectives have influenced students not to be passive receivers of knowledge but to become active students. This has ensured that students' potential in terms of their creativity and self-development has been improved, giving them the opportunity through independent learning and exploration to learn efficiently, think creatively and critically, participate in social life, and promote social welfare.
France Blanquer (2018)	The French education department emphasises that at the lower secondary education levels, an environment that breeds a taste for creativity in all students, need to be sturdily implemented. To meet the challenges of a rapidly changing world, schools must benefit from the contributions of research and innovation.
Germany Schmidt & Pavón (2017)	The significant prominence of the German curriculum is on the improvement of children's creative aptitudes.
Hong Kong Tam, Phillipson & Phillipson (2017)	Creativity is comprehended as a higher-order thinking skill and is given "top priority" by the education department, even though there is no dedicated policy for creativity. The education department in Hong Kong recognised the importance of creativity in the education system and focuses on using critical thinking, creativity, and communication skills. These are incorporated with effective learning and teaching strategies to improve the higher-order thinking abilities of their students.
Ireland Madigan & Doyle (2018:5) Ireland Department of Education (2019:Online)	Ireland developed a strategy for creative development in education called "Unlocking Creativity". The education department determined the importance of creativity in education in the early years of students as a prominent concern. The Minister for Culture, Heritage and the Gaeltacht, Josepha Madigan, called this groundbreaking work to "encourage ambition, risk, innovation and excellence in the creative and cultural sectors by harnessing the incredible talent and passion of our citizens and, by working together, across agencies, sectors and organisations, to achieve something truly remarkable." The Creative Ireland Programme emphasises that children are naturally curious and eager to learn. Creating a stimulating learning environment and providing them with well-defined tools, will provide them with the necessary opportunities to not only develop their creativity but will encourage them to create their own futures. The objective of this programme is to encourage kids' ambitions, risk-taking, innovation, and excellence in creativity. This will harness the incredible talent and passion of Northern Ireland's citizens. Creativity is considered as such an essential skill in Northern Ireland's education system that 23 June has been declared as a national day of creativity for children and young people.
Japan Smith (2018)	Japan initiated the Yutori education model that it is shaped on the notion of "zest for living", through which children are from a young age given the freedom to develop individuality and creativity. The model encompasses three interrelated concepts, namely creativity, independence, and collaboration that strongly focus on the importance of the Japanese concept of a lifelong learning society. It correspondingly places a high significance in making education pleasant through study and play. Creativity has been an indispensable part of the education curriculum since World War II. Japan comprehends creativity as the single most significant purpose of education for the 21st century.

Netherlands Dutch Ministry of Education (2014)	Since 2015, creative development is one of the primary principles of the Netherlands education system, even though students scored above average on the creative problem-solving indicator (Programme for International Student Assessment) (PISA).
Scotland Scotland Department of Education (2013:1–6)	The Scottish education department acknowledges creativity as a key factor that will concoct their nation to flourish through "life and work" in an ambiguous and fast altering world. They place such a high value on creativity that their minister of education called creativity the "next major enterprise for our society". He further stipulated that "the creativity of Scots – from the classroom to the boardroom – is the edge we need in a competitive world". Conditions that allow creativity to flourish are created for school students at all levels. The Scottish education department sees creativity as a valuable skill in retail, education, health, government, and business. Creativity should be an integral part of their culture through four essential factors: • **Creative process:** Involves investigating a problem or issue, exploring multiple viewpoints and options, generating and testing out ideas, developing, refining, and communicating solutions, and evaluating whether they have worked. • **Creativity skills:** Skills which contribute to an individual's capacity to understand and apply a creative process. • **Creative learning:** Describes the range of activities and approaches undertaken by an individual which supports the development of creativity and other skills. • **Creative teaching:** Describes approaches and activities, developed and delivered by those who lead learning, which is usually exciting, innovative, and often use unexpected techniques to engage students.
Taiwan Wu, Wu, Chen & Chen (2014)	Taiwan's White Paper on Creative Education, "Establishing a Republic of Creativity" (2003), indicates that creativity is the basis of the nation's competitive advantage. Universities are a significant contributor to fostering creative talent. The goal with creativity in Taiwan is to make itself an island of creativity by thoroughly nurturing talent within each university. In order to achieve their goals on creativity, a programme named "Professional Development for Creative Teachers" was designed for teachers to enable them to reach their creative potential. The education department further constructed creative campuses to encourage creative learning but also established creative school management that improves the conceptualisation of creative education, moving away from the traditional rigid bureaucratic administrative system. The Taiwanese are ranked among the best-educated workforce in the world, and their 15-year-old students ranked among the best for mathematics, literacy, and science in the PISA.
Singapore Hogan (2014)	The minister of education launched an education drive with creativity being one of the eight core educational skills and values. The objective is to develop students with enquiring minds, who can think critically and creatively. A strong emphasis is placed on the individual strengths and social skills of their students from pre-school up to college level. Creativity is included from early childhood development within primary languages (English and either Chinese, Malay, or Tamil), writing skills, and physical activities.

South Korea UNESCO Bangkok (2019:Online)	The Korean National Curriculum made every possible endeavour to produce a more gratifying education experience. Additionally, creativity was integrated as a critical outcome since 2015 (to be fully implemented in 2020). The critical outcome of the new curriculum is to "cultivate a creative and integrative student". The new education syllabus progressed from the previous syllabus where the focus was on homogeneous "knowledge and memorisation" learning to "competency-based learning" where students are given the prospect to follow "flexibility and creativity" based learning. This educational system was put in place to address the new challenges of skills shortages for the 21st century.
Sweden Swedish Ministry of Education and Research (2016:25)	The Swedish National Development Plan for Pre-School, School and Adult Education (2014) states that education should provide the conditions for developing creative skills. Education addresses the individual needs of pupils and focuses on "multi-faceted personal development into active, creative, competent and responsible individuals and citizens." At the tertiary level, the focus is on entrepreneurial skills, and all diploma qualifications include entrepreneurial skills as part of the qualification. Entrepreneurship is essential for entrepreneurs to successfully start and run a company, be creative, take the initiative, see possibilities, and solve problems.
United Kingdom (UK) QCDA (2009) Wyse & Ferrari (2015:2)	In 1997, the British government established the first commission to look at creativity in education. The findings led to "national economic prosperity and enlightenment visions of young people's education" and was one of the driving sources for incorporating creativity in education. Since 1999, the UK education department has emphasised the importance of creativity through the establishment of the National Advisory Committee on Creative and Cultural Education (NACCCE). The UK published several policy documents related to creativity in education. One of the more recent documents, the National Primary Strategy for Primary Schools published in 2013 by the Office of Standards in Education, reports that creativity is a significant factor in the educational experience. Creativity, as a critical skill, is included from the Foundation Stage Curriculum and National Curriculum for schools in England. Additional information related to creativity skills are published by the Qualifications & Curriculum Development Agency (QCDA) on the National Curriculum website and provides information on the following key issues (QCDA, 2009): • What is creativity? • Why is creativity important? • How can you spot creativity? • How can teachers promote creativity? • How can heads and managers promote creativity? The key objectives are to develop students to: • Think creatively and critically. • Solve problems and make a difference for the better. • Become creative, innovative, and enterprising.

	The National Curriculum outlines six "key skills" and amongst these are "thinking skills" and "creative thinking" which "enable pupils to generate and extend ideas, to suggest hypotheses, to apply imagination, and to look for alternative innovative outcomes" (Wyse & Ferrari 2015:2). This is regarded as one of the skills which is "universal" and "embedded in the subjects of the National Curriculum and are essential to effective learning."

2.3.2.2 Creativity in developing countries

Table 2.2 summarises how various developing countries worldwide utilise creativity in their education structures. This provides a global perspective as to how creativity is incorporated into the education system of developing countries.

Table 2.2: Developing countries – creativity in education

Country	Description
South Africa South African Department of Basic Education (2010) Ngozo & Mtantato (2018:Online)	"The education and training system should not only provide knowledge and skills required for the economy. It should also contribute to developing thinking citizens who can function effectively, creatively and ethically as part of a democratic society. They should have an understanding of their society and be able to participate fully in its political, social and cultural life." South Africa has the worst education system of middle-income countries that participate in cross-national assessments of educational achievement. South Africa spends more per capita on education than most advanced economies, yet the primary education system was rated 126th out of 138 countries for the 2016 – 2017 period. This could be contributed to factors such as: • Increased teacher absenteeism (10%) • Violence at schools • In-adequate educational resources • Poverty • Poor quality of teachers • Corruption • Constant shifts in education curriculums • Politics within the educational context • Student drop-out rates
Egypt Secretary-General of the OECD (2015)	Egypt's education department has announced some drastic changes from the current education system, but no reference was found on the inclusion of creativity as an outcome for education. The quality of education continues to be a stumbling block to optimise the full development of children's potential.
India Suresh & Kumaravelu (2017)	Higher education in India adopted programmes to support small-scale industries and enhance design and creativity. However, India experiences educational challenges relating to a large number of students wanting to access education, inadequate funding, language barriers (traditional languages vs English), and extremely high student-educator ratios.
Turkey Kizilçelik (2015:149)	Although creativity is discussed more frequently, no significant progress has been made to formalise it in the Turkish education system. Students are taught by listening to the teacher talking, resulting in the teacher being the "subject in the learning process".

Country	Description
Pakistan Ministry of Professional and Technical Training (2018)	Education is seen as a major contributor to social- and economic development. Pakistan will achieve this objective by equipping the country's young people with knowledge, creativity, critical thinking, and leadership skills to play a responsible role as global citizens. Pakistan's education system focuses on addressing the following immediate challenges: • The 22.5 million out-of-school children and ensuring that enrolled children complete their education. • A disparity in access across the country; there are considerable differences in the standard and quality of education that enrolled children receive in various education systems across the country. • Providing quality education to all children across the system. • Tertiary education and skills training. Pakistan is ranked 125th out of 140 economies on the 2018 Global Competitiveness Index. Although creativity is identified as a key skill for the youth of Pakistan, the above challenges have priority over the formal implementation of creativity in the education system.

2.4 EVALUATION OF CREATIVITY IN EDUCATION

Within the ambit of this research study, an assessment tool was developed to assess the creativity levels of students studying RBM at the CPUT. As stated earlier, the critical outcome associated with creativity is not formally assessed within the ND: RBM qualification at the institution. As understood by Robinson (2019) on revolutionising education from the ground up, one of the fundamental issues is that education places too much emphasis on conformance tests. Currently, no formal and recorded results for the evaluation of creativity is done within the ND: RBM qualification. The data obtained from this research study with regards to the assessment of creativity as a critical outcome would be valuable in terms of identifying the current levels of creativity and would be the first recorded results on the creativity levels of the students. These results will form the basis of setting measurable creativity standards for the qualification for future comparisons. It is envisaged that the data could also be used to enhance the education and study methods implemented in the RBM department, as well as assist in the successful placement of students in the industry upon completion of their qualification. The results obtained from a formal creativity assessment could thus be used to place students within the retail industry by matching their creativity levels with the creative requirements of the position. The data will assist in creating a positive environment for the development of creativity within the RBM department.

Ferrari, Cachia and Punie (2009:5–6) found a positive connotation between creativity, innovation, knowledge, and learning. They concluded that "intelligence does not seem to be a precondition for creativity." On education and creativity, they deemed creativity to be "seen by many researchers as a form of knowledge creation and of construction of personal meaning:

it is therefore an essential skill for enhancing the learning process. Creative learning can be seen as a form of learning that favours understanding over memorisation".

Fields and Bisschoff (2014:30) opine that the assessment of creativity at the tertiary level is challenging due to "diverse teaching and learning processes and programmes used at tertiary educational institutions". In their study, they identified twelve factors that represent the key elements for developing an assessment tool and assessing creativity at tertiary level. These factors are depicted in Table 2.3.

Table 2.3: Twelve factors used to measure the creativity of students

Number	Factor name	Factor description
1	Challenging the status quo	Refers to an individual's: • willingness and motivation to challenge assumptions • willingness and motivation to take initiative • willingness and motivation to look at the big picture • creativity in an environment that tears down personal barriers to creative thinking • creativity in his or her own areas of interest
2	Detachment	The ability of the individual to separate the following to be creative: • processes • resources • objects • dimensions
3	Synthesis	The individual's ability to use the following in processes to find solutions or generate ideas: • combine processes • look for uniqueness • look for similarity
4	Cognition	The individual's ability to use the following in solving a problem to: • discover links • discover relationships • cope with complexities
5	Associate and communicate	Individual's ability to: • generate new ideas • look actively for associations among concepts • use brainstorming to make associations • propose new ideas regularly • persuade others that creative ideas generated are valuable
6	Awareness	Individual's ability to: • recognise gaps • recognise contradictions • see different aspects of a problem • not get stuck on a set of rules
7	Similarity	Individual's ability to: • look for similarities • look for solutions • find patterns • find concepts
8	External motivation	Individual's ability to: • deal with the impact of external pressure and people to solve a problem • intentionally engage in unpopular ideas

Number	Factor name	Factor description
9	Sensibility	Individual's sensitivity to various aspects of a problem
10	Experiment and combine	Individual's ability to find the best creative solution through experimenting and combining objects
11	Dimensional thinking	Ability of an individual to: • consider the dimensionality of an issue • create ideas in terms of cost and time
12	Problem-solving	Individual's ability to randomly attempt to solve a difficult problem

Source: Fields and Bisschoff, 2014:27–30

Fields and Bisschoff (2014:28) acknowledge that assessing students' creativity will remain a controversial issue as "psychological factors are key determinants in fostering or inhibiting creativity at tertiary educational concomitant, with the relative impacts of social and cultural factors on creative and teaching processes in diverse academic disciplines in different countries".

According to Gomez (2007), creativity can be encouraged amongst students by establishing a learning environment that challenges students to include creative thinking. He presented two important findings; he identified factors that affect creativity, as well as the basic attributes of highly creative students. The factors he perceives to affect creativity include convergent- and divergent thinking, environmental factors, access to tools for the testing of ideas, reflective thinking, and evaluating thoughts. Gomez (2007) found that highly creative students display attributes such as originality, persistence, independence, involvement and detachment, deferment and immediacy, incubation, verification, discover problems, generate alternatives, and minimise labels or categories. This ties in with the findings of Land (2011) who also established a link between creativity, divergent thinking, and convergent thinking. It could be argued that Gomez's findings refer to a creative process of thinking, evaluating, finding, and evaluating alternatives from different disciplines.

Sokol, Gozdek and Figurska (2015) found that the behaviour of educators influences the climate and organisational culture conducive to the development of creativity within the education systems. They identified four fundamental factors required to develop creativity, namely:

- **Emotional climate**: This refers to the culture of the business. A positive emotional climate refers to factors such as the fundamental approach, attitudes, clear and explicit objectives and standards, commitment to the business, and building a milieu where creativity is exhilarated. An adverse emotional climate will possibly result in feelings of resentment, confusion – all factors that would lead to a negative effect on productivity and creativity. A positive emotional climate builds a non-threatening, trusting, respectful, welcoming, and understanding environment for all.

- **Flow of information**: This refers to how information is used in the organisation to ensure that relevant information is distributed where required for decision-making purposes. Information flow is thus not used as a power base where distorted information or a restriction of information is used, and employees are not entrusted with information.
- **Shaping purpose**: The annoyance of purpose, influence, and manipulation is present, instigating the deviation of creativity in the direction of anxious and apprehensive behaviour.
- **Control**: This refers to the balance of power (stringent/authoritarian control) in the organisation, where managers cannot overextend authority, and which results in the fair distribution of resources and opportunities within the organisation. It reflects on the corporate governance procedures used in organisations.

Jackson (2005) grouped the opinions of educators with regards to the evaluation and development of student creativity into the following four distinct groups.

- Group 1 opines that students are given sufficient opportunity to provide evidence of their creative skills through explicit assessment criteria.
- Group 2 believes that there is no sufficient consideration in the formal education system to identifying the creative skills of students; they perceive the evaluation of creativity to be implied within formal content (subject) evaluations.
- Group 3 considers it impossible to evaluate the creative skills of students.
- Group 4 values creativity as an essential outcome for education, but do not have the necessary skills, knowledge, time or resources to assess the creativity levels of students.

Stemming from the above, it is evident that educators do not always see the importance of creativity in higher education and often do not have the necessary skills or resources to develop and assess the creative skills of students. Therefore, the creative skills of their students will not be developed and after graduation, they will not be able to cope with the demands placed on them within the WRS as they will be unable to solve unique and complex business problems through applying creative skills.

This critical shortfall has been observed within the ND: RBM qualification where the creativity skills of students are evaluated in an informal and unstructured manner within formal assessment activities such as case studies and problem-solving exercises. Although students receive feedback for formal structured evaluations, no specific evaluation or feedback is included in determining the creativity levels of students. Students, therefore, neither understand the importance and impact of creativity in their studies and personal development,

nor do they know what their creative skills levels are. Furthermore, these students are unable to develop their creative skills throughout the qualification as they do not receive any formal tuition on creativity. The researcher, however, believes that all education institutions within South Africa, more specifically the higher education sector, have to provide educators with the necessary support, guidance, training, and resources that can assist with assessing and developing the creative skills of students that should be seen as a vital component within any qualification.

The problem, however, remains that although educators know the importance of creativity in education, many educators and researchers avoid the topic due to its diversity. Wu et al. (2014) confer the importance of creativity and suggest that one of the prominent reasons why educators avoid the topic of creativity is that even prominent experts and researchers have diverse opinions on exactly what creativity is. Wu et al. (2014) underwrite the necessity of the incorporation of creativity skills development in education by stipulating that education institutions ought to use their human capital intellectual capacity and the advantages of Industry 4.0 to ensure fast access to information to develop graduates with the necessary knowledge and creativity which, in turn, would enable students to meet the demands of the current vibrant commercial industry.

Williams and Foti (2011) state that creativity should be incorporated in curriculums as a critical outcome and should thus be included in education policies, including assessments, feedback on creativity levels, and creative skills development. Furthermore, all educators and students are to undergo formalised skills training in the development of creativity.

A case can be made that instead of only providing educators and students with proper training on creativity development, training should form part of the core business of the institution. It thus implies not only the improved creative skills of students and graduates from the institution but also the human capital of the institution that should be able to develop their creativity and that of their team members and colleagues. However, this can only be achieved once the creativity levels of students and staff have been established through suitable creativity assessment(s). Before creativity levels of individuals can be formally assessed, one needs to determine precisely what about creativity needs to be assessed.

Treffinger et al. (2002:x) defined three common terms related to determining the creativity levels of students, namely:

- **Measurement:** “refers to the use of an instrument or testing procedure through which quantitative data can be obtained and be treated statistically”.
- **Assessment:** “a process of taking stock of an individual (or group) by drawing together information from a number of sources and attempting to organize and synthesize those

data in a meaningful way. Assessment is a broader and more inclusive term than measurement".

- **Test:** "a particular kind of assessment that typically includes a standard set of items or questions that can be administered to individuals or groups under well-defined, controlled conditions".

They concluded that determining the creativity levels of individuals could assist in recognising creative abilities, and determining creative characteristics or the creative abilities among people which are critical factors for the objective of this research study, namely:

To determine the extent to which students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT.

It also directly relates to the following secondary research objectives:

- To determine the extent to which the creativity levels of RBM students meet the required creativity levels of the retail industry.
- To determine the extent to which the creativity skills of RBM students are developed over the three-year duration of the qualification.
- To determine the extent to which gender, age, and ethnicity have an impact on the creativity levels of RBM students.
- To determine if there is a correlation between creativity levels and students selecting RBM as the first choice of study.

Batey (2012:55) concluded that to conduct a "scientific study of creativity" is no easy task and that there is a substantial interest among researchers "in the scientific analysis of creativity". As far back as 1869, several researchers have found diverse approaches to evaluating creativity (see Table 2.4). Some of the outcomes included the relationship between IQ and creativity, rating creativity from archival sources, and using a fluency factor to determine levels of imagination associated with creativity.

However, as alluded before, vast research has been conducted on creativity since the 1950s; however, no study has been conducted to determine the creativity levels of RBM students in South Africa. The critical questions to be considered is, therefore, what about creativity is going to be assessed and why, and what method should be used? It is essential first to determine the types of assessments that are available to determine the creativity levels of students, what these assessments measure, and how students will be assessed.

Table 2.4: Summary of key approaches to evaluate creativity

Authors	Date	Title	Outcome
Galton	1869	Hereditary Genius	Examined the extent to which eminence genius could be passed down. Rated creativity from archival sources.
Terman	1959	Genetic Studies of Genius	Sampled 1 600 high-IQ school children. Examined the relationship between intellect and real-world achievement.
Spearman	1904	The Faculty of Imagination	Isolate a factor of intelligence and identified the fluency factor[i] (f). Resulted in a variety of tests developed for creativity testing.

Source: Batey, 2012:57–59

Any assessment tool used for determining creativity skill levels, existing or new, needs to incorporate four categories/elements as shown in Table 2.5 (see overleaf) (Cropley, 2000b:77):

Table 2.5: Assessment tools for determining creativity skill levels

Product:	**Process:**	**Motivation:**	**Personal abilities:**
• originality • relevance • usefulness • complexity • understand ability • pleasantness • elegance/well-craftiness • germinability (earliest state of development)	• uncensored insight and converting applicable information • fluency of ideas (large number of ideas) • problem recognition and construction • unusual combination of ideas (remote associates) • category combinations (boundary breaking) • construction of broad categories (accommodating) • transformation and restructuring of ideas, seeing implications • elaborating and expanding ideas and self-directed evaluation of ideas	• goal-directedness • fascination for task or area • resistance to premature closure • risk-taking • preference for asymmetry • preference for complexity • willingness to ask many (unusual) questions • willingness to consult other people (but not simply to carry out orders) • desire to go beyond the conversional	• active imagination • flexibility • curiosity • independence • acceptance of own differentness • tolerance for ambiguity • trust in own senses • openness to sub-conscious material • ability to work on several ideas simultaneously • ability to restructure problems and the ability to abstract from the concrete

Source: Roeper, 2000:77

Research on creativity has led to many diverse assessment methods and varied results related to creativity, resulting in many researchers becoming discouraged (Kaufman, 2012). It can thus

be concluded that what researchers are setting out to achieve with their assessment methods/tools does not measure the results/outcomes of creativity as intended.

Williams and Foti (2011) stipulate that to develop creativity skills, it is necessary to assess appropriate and applicable creative levels. Thus, assessed creativity must be suitable for the environment the results will be applied to. These environments, within an education system, include the provision for students to develop their creativity through focused activities incorporated in the curriculum, a safe environment to apply their creativity, suitable methods to assess their creativity, and timeous feedback on their creativeness.

2.4.1 Challenges in assessing creativity

Assessing creativity seems to be an exceedingly argued topic amongst academics and researchers as many have identified various creativity assessment methods, while others have tried to verify or disproof creativity assessment methods. Consequently, educators often tend to steer clear of assessing creativity. Said-Metwaly, Kyndt and Van der Noortgate (2017:243) stipulate the problems associated with finding "dependable instruments to evaluate" creativity. "Much of the ambiguity surrounding the measurement of creativity is attributed to the lack of consensus among researchers on its definition … each instrument reflects the conception of its developer regarding the nature of creativity" (Said-Metwaly et al., 2017:243).

Torrance and Goff (1989) opine that there are 255 different creativity assessment instruments available to evaluate different facets of creativity. Cropley (2000b) agreed that although there are more than enough tests available for assessing creativity, the assessment method needs to be applicable to the environment in which the results will be applied to. As already established, there is no single creativity assessment method that provides a single all-encompassed outcome for defining a creativity profile. This endorses the difficulty experienced in assessing the creativity levels of ND: RBM students. The most pressing question was to determine whether the subject (student/learner, employee or retail business manager) is creative. When educators are faced with this question, the inherent difficulty in even defining creativity denotes that an extraordinary assessment process will have to be instituted – a process of assessment addressing questions regarding what aspect of creativity is being assessed, how it would measure creativity, and what feedback the results would provide to the subject.

Barbot, Besançon and Lubart (2011:58) define the problem of assessing creativity through a question: "How (How much) creative is this student?" (Creativity as a level)". This problem stipulates that the answer to this question could suggest a "unitary conception of creativity", which would suggest that creativity is a constant and one-dimensional construct and is, therefore, present in all individuals to various levels. They warned that assessors should be

vigilant in just assessing subjects as many of the creativity assessments measure "components" of creativity" (Barbot et al., 2011:58). "Component measurements are thus, too often, interpreted as pure measures of general creative potential (if such a general potential exists)" (Barbot et al., 2011:58). Their proclamation sanctions that contemporary assessment tools are restricted in that they merely measure aspects of creativity and do not provide a comprehensive answer to how creative an individual is. They further advocate that there are more than 300 personal physical characteristics that may conceivably be used as gauges for creativity in individuals (Barbot et al., 2011).

Treffinger et al. (2002:27) also cautioned that assessing creativity will not be easy and that it should be done cautiously as it has many challenges for both the assessor and the individual being assessed. The following are some of the challenges they identified and the impact it could have on the assessment of creativity:

- Creativity is a well-researched subject and individuals construe creativity in so many infinite and diverse ways that even a single definition of creativity is a thought-provoking prospect. "In addition, creative thinking, creative potential and creativity may not represent the same construct". It is, therefore, understood that personal interpretations, explanations, understanding, and justification could influence the selection of suitable assessment tools. Once the most suitable assessment tools have been selected, the same factors mentioned above (personal interpretations, explanations, understanding, and justification) might influence the analysis of data and the interpretation thereof.
- "There is no one right or best way to be creative". Interpreting creativity when compiling an assessment and evaluating responses from a participant could influence the results as an assessor's understanding of creativity could differ from that of the participant.
- Assessing the students and participants should distinguish that: "IQ and achievement are the primary or most powerful indicator of students' gifts and talents". The assessment tool should consider this and ensure that the questions and activities used to assess the creativity levels are not only focussing on the intelligence quotient.
- "Some elements of creative thinking can be observed." The assessment tool should take this into consideration. Participants should be assessed under a controlled environment and observation should form part of the assessment.
- "Creative thinking skills can be natured, and deliberate efforts to do so are important components of an excellent education program." An assessment should determine the creativity levels of students. Furthermore, the assessment should generate data to evaluate the continued development of students' creativity skills.
- "Tests are not the primary way to understand and document superior skills in creative thinking." An objective of this study was to generate "base" data that could be used to

develop, with formal subject assessments, a more accurate method for evaluating creativity within the ND: RBM qualification.

- "Creative thinking can be manifested in an almost infinite number of ways." Once the creativity levels have been assessed, formal subject assessments should be altered to measure a more complete creativity profile of RBM students. These assessments should be done over a longer period, cover different methods of assessing creativity, and incorporate a variety of task-driven techniques.
- Efforts to identify creative thinking strengths in students should be linked closely to the efforts made to assist in applying, expressing, and improving their creative skills. To ensure the most effective assessment and development methods for creativity levels of the students, these assessments- and development activities should be linked to what is expected from RBM graduates in the WRS.

Gross, Green and Gleser (1977), as well as Said-Metwaly et al. (2017), contended that there is no single assessment tool for creativity or intelligence that embodies the entirety of creativity levels. Furthermore, results on the creativity levels of students cannot be interpreted fairly in terms of any single result. According to Said-Metwaly et al. (2017:239), an essential factor associated with creativity assessment tools is "their diversity, indicating the complexity of defining and measuring creativity. In addition, these instruments have limitations, such as measuring trivial aspects of creativity or lacking adequate psychometric properties." It can, therefore, be concluded that any form of creative assessments will face critical factors in the development, assessment, and interpretation of the data in terms of how to define creativity within the parameters of the assessment needs, what characteristics, factors, and features of creativity should be assessed, as well as how the data should be interpreted to reach the required results/outcomes. It was, therefore, essential to use different methods to assess the creativity of RBM students (see Appendix B1). Consequently, the recommendations of Gross et al. (1977) were applied within the ambit of this research study. These recommendations state that part of the assessment tool should focus on self-evaluation through statements based on the characteristics of more creative individuals, a second part should focus on the interpretation of self-evaluation and determining the n factor for creative ideas, and the final part should focus on the visual interpretation and application of creativity. These guidelines were applied in this research study by means of a survey (see Appendix B1) to assess student creativity in the ND: RBM qualification.

2.4.2 Creativity assessment methods

Creativity assessment can be regarded as an attempt to recognise or identify creative characteristics or abilities among people or to understand their creative strengths and potentials. Although there are many different assessment tools for creativity, "none of these

instruments is without its limitations or can alone undertake the task of measuring the multifaceted construct of creativity" (Said-Metwaly et al., 2017:258–259). They found that assessment tools have various limitations in terms of what they measure and that creativity instruments "direct greater attention to within-individual aspects of creativity". An example of the shortcoming of a creativity assessment tool is when the impact of the external environment on an individual's creativity is not taken into consideration. One factor that was taken into consideration for this research study is that many of these standard tests did not consider the South African learning/educational environment or the South African WRS environment of the participants.

Cropley (2000a) identified the need and the value for assessing creativity, but also indicated that there is a multitude of possible assessment tools available. Kaufman, Plucker and Russell (2012) state that creativity has been assessed since the introduction of creativity itself; however, most commonly, creative testing focuses on creative thinking processes (divergent thinking tests). Creativity assessment methods denote the difficulty in defining creativity and finding a suitable assessment method for creativity. It is evident that a single assessment tool focuses on specific aspects of creativity, but do not provide a complete, detailed creativity profile as required for this research study. Treffinger et al. (2002) advised that before the commencement of a creativity assessment process, it is essential to define what aspect(s) of creativity needs to be assessed as numerous assessment devices have been established for the assessment of various aspects of creativity.

Creativity is a skill that can be taught and developed by incorporating teaching methods that establish a learning environment that challenges students to apply creative thinking. However, due to the lack of knowledge and being allowed to develop their creative skills, students often do not understand the importance of creativity and developing their creative skills.

Stemming from the above, it could be concluded that assessing creativity is a complex matter that needs to be carefully considered. Creativity in education is almost non-existent and there is currently no formal assessment of creativity within the ND: RBM qualification despite it being listed as a critical outcome of the qualification. This might be attributed to the diverse teaching and learning methods in the South African higher education system and the fact that educators neither always see the importance of creativity in a higher education environment nor do they have the necessary skills or resources to develop and assess the creative skills of students. It is, therefore, essential to determine the factors associated with creativity assessment, and how to assess creativity such as why creativity needs to be assessed, what factor(s) of creativity needs to be assessed, and how the data obtained will be interpreted to reach the required results/outcomes. Table 2.6 (overleaf) provides a summary of various pertinent creativity assessment methods.

Table 2.6: Creativity assessment methods

Assessment name	Date created	Author(s)	Uses	Outcomes
Creative achievement questionnaire	2005	Carson, Peterson & Higgins	Used in fields of: Visual arts, music, dance, architectural designs, writing, humour, inventions, scientific discovery, theatre, and film Culinary arts	Focusses on significant, observable accomplishments Uses an innovative and complex scoring method.
Biographical inventory of creative behaviours	2005	Batey	Based on behaviours and whether people have done something creative through arts, crafts or writing.	Uses a 34-item scale. It assesses creativity across a broad range of fields. First section covers a broad spectrum of everyday creativities such as arts, crafts, and creative writing. Second section covers forced yes/no questions.
Creative product inventory	1975	Taylor	Generation Reformulation Originality Relevancy Hedonics Complexity Condensation	
Creative product semantic scale	1987 (revised in 1998)	Besemer & O'Quin	Novelty Resolution Elaboration	Assessment has 43 items and uses a semantic-differential rating scale to evaluate product/outcome that is: • original/surprising and germinal • valuable, logical, useful, and understandable • organic, elegant, complex, and well-crafted
Creativity test for children	1976	Guilford	Structure of Intellect (SI)	Consists of 10 tests for Grade 4 to Grade 6 children Covers: Verbal, visual and figural Focusses on: Divergent production
Structure of the intellect learning abilities	1985	Meeker	Measure eight cognitive activities with regards to creativity	• Divergent thinking • Divergent symbolic relations • Divergent symbolic units • Divergent semantic relations • Divergent semantic transformation • Divergent figural relations • Divergent figural transformation

Assessment name	Date created	Author(s)	Uses	Outcomes
Torrance test of creative thinking	1966 (revised in 1999)	Torrance	Measures aspects of creative thinking such as fluency, originality, and flexibility	Consists of two parts: • Verbal: Thinking creatively with words • Nonverbal: Thinking creatively with pictures
Remote associates test	1962	Mednick	Creative individuals think of novel ideas and use these ideas effectively	Consist of 30 items that each consist of three seemingly unrelated words. The objective of the test is to find a fourth word to link the three words.
Triarchic abilities test	1997	Sternberg	Analytical abilities Practical abilities Synthetic abilities	Consists of multiple-choice options where novel numeric operations are required.
Test of creative thinking	1996	Urben & Jellen	Image production	Assessment has two forms with incomplete figures and participants need to complete the drawings. Productions are rated according to the following dimensions: • Boundary breaking • New elements • Humour • Effectivity
Creative reasoning test	1990	Doolittle	Two levels: Level A: Grade 3 – Grade 6 Level B: Secondary- to college levels	Two forms for each level – Form 1 and Form 2; each have 20 objects. Problems are to be solved with riddles. Involves associative-, inductive-, and divergent thinking. Answers are specified in scoring; thus, inter-rater reliability is not an issue.
Biographical inventory	1968	Schaefer & Anastasi	Evaluate information about individuals and their background	Consists of 300 items (include multiple-choice questions, selecting from alternatives, and open-ended questions). The items assess five areas: • Family background • Intellectual and cultural orientation • Motivation • Pervasive and continuing enthusiasm • Drive towards novelty and diversity
Alpha biographical inventory	1968	Taylor & Ellison		

Assessment name	Date created	Author(s)	Uses	Outcomes
Creativity checklist	1979	Johnson	Evaluates individual characteristics that are believed to increase the chance of creativity	It rates individuals from all ages through 165 items that are answered through a five-point scale. It rates the behaviour of individuals through the following dimensions: • Cognitive • Fluency • Flexibility • Constructional skills Personal properties that are assessed include: • Ingenuity • Resourcefulness • Independence • Positive self-referencing Preference for complexity
Life experience inventory	1979	Michael & Colson	The assessment focusses on factual information	The assessment is an inventory consisting of 100 items covering the following four areas: • Self-striving or self-improvement • Parental striving • Social participation and social experience • Independence training
Creative activities checklist	1987	Runco	Suitable for use with children in Grade 5 to Grade 8	The assessment asks participants to indicate how frequently they have participated in real-life activities. The activities are restricted to a time frame and focus on the following six areas: • Literature • Music • Drama • Arts • Crafts • Science
Creative behaviour inventory	1989	Kirschenbaum	Consists of two forms: CBI 1: Grade 1 to Grade 6 CBI 2: Grade 7 to Grade 12	The assessment has ten items focusing on five dimensions: • Contact • Consciousness • Interest • Fantasy • Total score

Assessment name	Date created	Author(s)	Uses	Outcomes
Group inventory for finding creative talent (upgraded to group inventory for finding interests (GIFFI) I & II))	1980 1982	Rimm & Davis	The tool assesses attitudes and interests associated with creativity	The assessment is available in the three levels: • 32-item scale for Kindergarten to Grade 2 • 34-item scale for Grade 3 to Grade 4 • 33-item scale for Grade 5 to Grade 6 The upgraded GIFFI has two levels, one for junior high school (Grades 8 – 10) and the other for senior high school (Grades 11 – 12). The assessment has 60 items and can be administered in a group setting. It assesses behaviours such as: • Curiosity • Originality • Independence • Flexibility Risk-Taking
Creativity styles questionnaire	1997	Kumar, Kemmler & Holman	Participants rate themselves on a five-point scale	This assessment consists of 76 statements to evaluate seven dimensions: • Belief in unconscious processes • Use of techniques • Use of other people • Final product orientation • Environmental Control • Superstition • Use of senses
Abedi-Schumacher creativity test	1994	O'Neil, Abedi & Spielberger	Multiple-choice assessment where individuals rate themselves	The assessment has 60 questions to measures indicators for: • Fluency • Flexibility • Originality • Elaboration
Villa and Auzmendi creativity test			Participants rate themselves on a five-point scale	
Iowa inventiveness inventory	1992	Colangelo, Kerr, Huesman, Hallowell & Gaeth	For inventors who hold industrial or agricultural patents rating themselves on a five-point scale	The assessment consists of 61 statements to recognise creative individuals

Assessment name	Date created	Author(s)	Uses	Outcomes
How do you really feel about yourself?	1972	Williams	Used for children in Grade 6 to Grade 12	The assessment measures: • Curiosity • Imagination • Risk-taking Preference for Complexity
Creativity assessment packet	1980	Williams	Used for children from Grade 3 to Grade 12.	The assessment consists of two parts and a section where the teacher or parents evaluate the frequency of the behaviours. The one part has 12 partially complete figures. The children are required to complete the figures. The completed figures are rated according to: • Fluency • Flexibility • Originality • Elaboration The second part has 50 multiple-choice items. These measure: • Curiosity • Risk-taking • Desire for complexity • Imagination
Creatrix inventory	1986	Byrd	Integrates cognitive and non-cognitive dimensions of creativity	The assessment uses the concept of idea production relating to producing unconventional ideas. It involves two blocks of 28 self-rating statements or attitude statements. The first block measures creative thinking and the second block measures risk-taking. Individuals score themselves on a nine-point scale, and the totals are plotted on a two-dimensional matrix which indicates the individual's style – one of the following eight styles: • Reproducer, Modifier, • Challenger, Practicaliser, • Innovator, Synthesiser, • Dreamer, Planner

Assessment name	Date created	Author(s)	Uses	Outcomes
Adaptation–innovation inventory	1989	Kirton	Assessment between individuals who seek to solve problems and attempt to reorganise and restructure the problem.	The assessment has 32 items. Respondents rate themselves by indicating how difficult it would be for them to conform to the statement. The results indicate individuals': • Originality • Conformity Efficiency
Basadur preference scale	1996	Basadur & Hausdorf	Assess and identify the different aspects of an individual's preferences in creative problem-solving	The 24-item assessment is scored using a five-point scale. The results identified three dimensions: • Valuing new ideas • Creative individual stereotypes • Too busy for new ideas
Adjective check list	1983	Gough & Heilbrun	This assessment is unique as it can be used for self-ratings and the rating of individuals by observers	The assessment has 27 items. Used to identify if students are more or less creative. Students rate themselves and their results are compared against ratings of their teachers.
Domino creativity scale	1994	Domingo	Sub-scale of adjective checklist	Consists of 59 items, used to identify if students are more or less creative. Students rate themselves and their results are compared against ratings of their teachers.
Creative personality scale	1992	Gough	Assessing creativity among adults	The assessment uses 18 adjectives with a positive weight and 12 that receive a negative weight.
Creativity domain questionnaire	2004	Kaufman & Baer	Measures individuals' beliefs regarding their own creativity levels within diverse domains	Consists of an 11-item questionnaire. Ten items focus on different types of creativity, and the final question determines individuals gives an overall rating of their own creativity.
Guilford's alternative uses task	1967	Wilson, Guilford, Christensen & Lewis	Participants are requested to list as many possible uses for a common household item	The assessment is used for the following four components: • Originality • Fluency • Flexibility • Elaboration

Source: Cropley, 2000b:72-78

From the above assessment method examples, the following two key factors were considered in this research study:

Fluency: Fluency reflects individuals' open-mindedness for exploring new ideas without filtering any of the ideas, as well as the number of ideas individuals can generate in a given situation (Saasen, 2017).

Flexibility: In the assessment of creativity, flexibility evaluates an individual's ability to be creative at different levels and uses different methods of creativity to solve a situation (Saasen, 2017).

Fluency and flexibility were incorporated in Part B of the questionnaire. Participants were requested to identify as many possible uses for a given item (a paperclip, chair, and teaspoon). The number of possible uses or the fluency (f) was multiplied with the flexibility factor to obtain a score. The flexibly were evaluated for high-level creativity (participants received a score of 3), intermediate-level creativity (participants obtained a score of 2), low-level creativity (participants obtained a score of 1), and no creativity (participants obtained a zero score).

2.5 CREATIVITY IN RETAIL BUSINESS MANAGEMENT

The BusinessDictionary (2019c) defines RBM as a process of promoting greater sales and customer satisfaction by gaining a better understanding of the consumers of goods and services supplied by a retail entity. A typical retail management strategy for a retail business might research the retail process that distributes the products/services to the consumers to determine and satisfy what the consumers want and require.

The RBM industry is currently the fourth largest contributor to the South African economy as it contributes 15 per cent to the GDP and employs 22 per cent of the total South African workforce (W&RSETA, 2016). According to Farfan (2019), retail entails selling products for consumption to the final user in the supply chain. The sale transaction could happen in a single brick-and-mortar retail store, an online website, a catalogue, or even a smartphone. The retail transaction is not aimed at reselling that constitutes a wholesale transaction. Retail in South Africa can thus be seen as the transaction (where the consumer pays for and receives the product(s) or service(s) between a business and the end-user of a product or service (the consumer). This is done to satisfy the need of the consumer and for the business to make a profit.

Encyclopaedia Britannica (2018) defines retailing as the selling of merchandise and certain services to consumers. The retailing process generally involves the selling of individual units or small lots to large numbers of consumers by a specialised retail business. Retailing originated the first time when one item of value was exchanged for another. In the more restricted sense of a specialised full-time commercial activity, retailing began thousands of

years ago when peddlers first began hawking their goods, and the first marketplaces were formed. The consumer is thus prepared to enter a transaction, usually payment (sale) for the product/service which qualifies the retailer to make a turnover resulting in an eventual profit. A retailer is thus an individual (owner) or business entity that sells goods/services to the final consumer of the product or service. When a company sells products in larger quantities to a middleman, it is referred to as wholesaling and not retailing. Retail is also the last activity before the consumer uses the product.

Retailing comprises the business activities involved in selling goods and services to consumers for personal-, family- or household use. It is the last stage in the distribution process. Today, retailing is at an interesting crossroad with many challenges ahead. Retailing may be viewed from multiple perspectives and includes tangible- and intangible items, does not have to involve a store, and can be done by manufacturers, others, and retailers.

From the above, it can thus be concluded that the retail business manager needs to understand the consumer and the business of retailing. In modern days, consumers are more demanding/knowledgeable (information about the company and products are readily available through IA) and select retailers offer a wider range of products/services for the consumer to select from. Consumers also opt to make use of retailers that offer more than just a place to purchase merchandise – they look for retailers that can offer them a complete retailing experience (Trotter, 2018).

From the above, it can thus be concluded that there are three critical factors involved in RBM, namely:

- **Classification of the business.** Makro, a South African wholesale and retail chain store, sells products to both consumers and customers. Selling to the end-user (final consumer) makes it a retail entity. Selling to customers, who often buy bulk products to re-sell the purchased merchandise to the final consumers, also makes Makro a wholesaler.
- **The method preferred for selling the merchandise can vary from retailer to retailer.** Sales could be conducted from selling from a traditional brick-and-mortar store to door-to-door sales, telesales, online sales or sales conducted through vending machines.
- **Retail process.** The retail process associated with a retail entity includes the RBM functions of sourcing suitable products for the business, purchasing the merchandise, the logistics of getting the products to the location for the actual sale (including delivery to the consumer where necessary), and the retail transaction where the final consumer pays typically for the product. The sales provide the company with a financial turnover that results in a profit for the retail business.

As stipulated in the WRS skills plan (W&RSETA, 2016), retail business in South Africa is a resilient entity, but are confronted with many challenges, but fortunately also many opportunities. Some of the many factors influencing the industry include aspects such as new international entrants into the South African market that provide new retail products and unique retail experiences to South African consumers. This causes the South African WRS to change at a rapid pace to attract market share. Furthermore, the growth in e-commerce is seen as one of the key opportunities for retailing in South Africa. Changes in customers' buying habits mainly drive this growth, an increase in smartphone penetration, improved data networks, and higher confidence levels among end-users in conducting online transactions. Many retail customers have also adapted their purchasing habits by using a combination of online and in-store purchasing. Customers now have the option first to investigate options online, compare prices of products through websites such as PriceCheck, and then decide to purchase the product online or in the store. The retail industry is thus forced to use a multi-disciplined method to satisfy the needs of their customers.

Based on the above information, the WRS has acknowledged creativity and innovation as key success factors to ensure its survival in South Africa.

2.5.1 Importance of creativity in retail business management

The significance of creativity is well-known in overcoming the challenges of Industry 4.0, but the question remains whether creativity will be a critical skill required for modern-day retail business managers. This is indicated by the need for creative problem-solving of business challenges. More creative insight is required in finding suitable solutions in today's complex business environment, and the researcher is convinced that finding creative solutions for complex business problems will provide businesses with a competitive advantage over their competitors.

Simonton (2001:2) defines creativity as a skill and the ability to "adjust to novel circumstances and to solve problems that unexpectedly arise". It can thus assist the modern-day South African leader to overcome various difficulties in leading complex retail businesses. Simonton believes that creativity is a critical skill required for the modern-day business leader and that creativity "can also result in major contribution to human civilisation" (Simonton, 2001:2). Wahl (2015) explains the difficulty of being a modern-day creative leader by stating that people often tend to take the stress-free route in their careers by rather accepting the norm of situations and act on commands and directions rather than to take a leadership role in situations. He emphasised that "becoming a leader is something anyone who's committed to the task can master. There's no inborn quality that leaders possess. They're ordinary people who decide at one point or another to do extraordinary things. That doesn't just take courage, it demands creativity—the kind you need to actively nurture and practice" (Wahl, 2015:Online). It is,

therefore, evident that in everyday life of retail business managers, they need to use their own creative solutions to solve complex business problems that the WRS have to deal with. These problems range from dealing with a demanding customer that had to wait in a line to pay for merchandise to solving difficult strategic business management problems like the implementation of AI systems and even humanoids that could result in an even higher South African unemployment rate.

Since RBM graduates become involved in the WRS through functions such as management, procurement/buying, stock control, merchandising, sales, administration, logistics or housekeeping (Mugobo, 2019), this research study recognised creativity to be equally important to both ND: RBM graduates and the retail business sector. To the retail industry, creativity is much more than just being open-minded, as graduates should be able to find innovative methods for performing various activities. Forknell (2018:Online) suggests that future retailers should apply a "whole brain thinking approach". He further suggests that more people today appear to be seeking leaders who are effective communicators, credible, build relationships, engage and inspire their people, encourage innovation, and lead by example.

According to Australiancurriculum.edu.au (2010:Online), various key creativity skills should be incorporated in education to instil creativity in students. These skills will enable students to be:

- resourceful, inventive, original,
- unusual in their thinking and handling of situations,
- imaginative,
- inspiring and innovative,
- individualistic and visionary.

However, the researcher believes that creativity is much more simplified as it can involve tasks or activities that are as elementary as working on a report that needs to be submitted and realising the format is outdated and then addressing this issues by changing the format. This could be perceived as low-level creativity. Finding alternative uses for products being used daily could be seen as an intermediate level of creativity. Designing and developing a sustainable transport device that do not require fossil fuel could be seen as high-level creativity.

KPMG (2017: online), a multinational professional services network, and one of the Big Four accounting organisations, lists eight significant risks facing the South African retail industry. Based on the risks listed below, it is apparent that just knowing the needs of your customers have become more multifaceted than ever before.

- **Competition:** Since many national and international retailers offer very similar products and services, it results in fierce competition among retailers regarding their products' price, quality, and speed of delivery. Thus, South African retail managers

require creative problem-solving skills to find new and unique solutions, methods, and approaches to solve unique and complex business problems and outperform local and international competition. This will provide them with the opportunity to maintain or even increase their profitability and market share.

- **Developing customer trends and preferences:** South African retail consumers are more connected than before and thus have access to endless retailers to obtain products and services. This forces retailers to incorporate technology in their retailing strategy. Since 61 per cent of customers have read online reviews before purchasing products, it makes them more informed about the product and the company (Howarth, 2016). Consequently, retail managers are expected to find creative methods for keeping their customers informed on all aspects of their business, products, and services. As customers become more knowledgeable, they will make their buying decision on the information they have available, not only on the product and price but on the company as well.
- **Brand and reputation:** The ability for anybody to post product or company reviews anywhere on the Internet could result in the brand image or company reputation being influenced negatively which, in turn, will have an impact on sales. RBM managers would, therefore, be required to apply their creativity in ensuring retail businesses maintain their brand and reputation as customers have access to many different social media platforms that could be used to discredit both the reputation and brand of the business which, in turn, could cause the company substantial costs in repairing a reputation that was built over many years and destroyed in moments.
- **Security of customer- and personal information:** Cyber-attacks are increasing worldwide. After the 2018 Federation Internatinale de Football Association (FIFA) World Cup in Russia, almost 25 million cyber-attacks were launched against the country. South Africa fell victim to the Hetzner breach where more than 30 million South Africans' personal information (including property ownership, income, and employment history) was exposed online, in what is considered South Africa's biggest data breach (Saal, 2018). Legally, the RBM will thus have to secure the personal information of all the stakeholders, including staff, customers, suppliers and creditors' personal information. The protection of personal information (POPI) Act of 2013 addresses this matter with regards to the gathering, recording, categorising, storage/record keeping, amendment and presentation of any personal or personal related information. (Michalsons, 2019).

- **Compliance with regulations:** South African retailers face many regulatory changes, from labour regulations, tax laws, and property laws, among others. Two of the most significant changes experienced by South African retailers during 2018 was the

implementation of the sugar tax law and the increase of VAT from 14 per cent to 15 per cent.

- **Technology disruption and change:** The increasingly more prominent role and faster-changing pace of information technology in the retail industry increase the risk of system failure. The cost implication of new information technology systems and products are also a serious consideration for South African retail businesses. As alluded earlier, the impact of Industry 4.0 will have an unparalleled impact on the RBM sector and well-developed creativity skills will be the most vital contributor to ensure the survival of businesses (IBM, 2010).
- **Attract and retain personnel:** There is a crucial shortage of qualified retail staff in South Africa (W&RSETA, 2016). This causes a major problem for retail business managers to attract and retain staff – specifically at the senior- and executive management levels. This demand leaves gaps in the management structures of companies. According to the WEF's future jobs listed and the W&RSETA skills plan, Industry 4.0 will significantly transform current jobs in the retail sector. These new jobs will demand particular and new skills. It is, therefore, vital that retail business managers identify these shortcomings in staff skills, develop these skills, and have systems in place to retain staff with the required scarce skills. This will necessitate them to be creative in identifying future skills need, as well as finding methods and strategies to retain staff.
- **21st Century retailing:** During the next five years, retailing will become the new focal point that will concentrate on virtual reality, self-driving cars, customer customisation of products, robotic customer service, and health-conscious products and services. Creativity will thus be a critical skill required by retail business managers to lead the South African retail industry into the 21st century.

Based on the above risks, South African retailers will be required to review their strategic planning to encompass factors such as their core business functions that will be influenced by these risks. New trends in delivery methods could force companies to use electric automated drones rather than vehicles driven by humans, retail businesses could use robots/humanoids to act as customer liaison and security staff, and new generation AI software used for customer profiling and to establish pay-point less shops. These types of risks can be addressed through applying a more rigour management discipline, and integrity or a vision will be required to successfully navigate an increasing complex [retail business] world in a creative manner (IBM, 2010). Creativity is a key factor for the well-being of society because of the impact of globalisation and economic conditions on individuals and organisations. This requires them to "adapt their resources to changing demands to remain competitive" (Basadur & Basadur, 2011:86). Furthermore, many organisations do not perceive creativity as important; however,

“the most effective organisations recognise its importance and develop positive attitudes toward it. Effective organizations are simultaneously efficient and creative”.

In addition to the above, a PwC CEO survey (2018:16) revealed the ten most severe threats business leaders would have to deal with in Africa (the percentage of companies that indicated the threat is provided in brackets):

- Social instability (50%)
- Increase in tax burden (49%)
- Over-regulation (48%)
- Uncertain economic growth (45%)
- Geopolitical uncertainty (45%)
- Exchange rate volatility (45%)
- Cyber threats (45%)
- Populism (43%)
- Availability of key skills (43%)
- Unemployment (39%)

The WRS need to overcome the above threats and as such require suitable and developed graduates that can use their creativity to become effective and efficient business leaders that can take the lead in overcoming these difficulties and threats. South African retail leader and CEO of Shoprite Holdings, Whitey Basson, opines that creativity is a scarce skill that is required to assist the WRS in overcoming the current challenges they face. Basson believes that creative skills could assist in the many situation managers are faced with, and could be required to “deal with new and unique customer needs, dealing with the complex employee situations, new demands on system information and data analysis [Industry 4.0], developing business plans for new business ventures, including opportunities for being creative in strategic planning, swot analysis and tactical planning. Other areas where managers could be exposed to be creative could include advertising, marketing and selling products/services, stock management, international purchasing, human resources planning, recruitment and development. Organisations are also doing everything possible to reduce costs” (PwC, 2012:20). Business leaders need to become creative in cost solving methods to ensure the survival of their businesses.

From the above, it can thus be concluded that the South African WRS are faced with many new and unique problems that require innovative resolutions. These problematic issues require unique solutions, often never used before. WRS managers are forced to think and find suitable solutions outside the box. The necessity for finding creative solutions for modern-day and future business problems resulted in organisations finding new importance and value in this field. Nowadays, most organisations are entirely mindful of just how vital creativity is to

their business. Creativity was found to be one of the more profound assets for any individual who is in a managerial position. WRS managers will continue facing a volatile future in the South African retail sector. To cope with the demands of this volatile and ever-changing environment, retail managers will have to think out of the box and act as if they are not limited by any boundaries. This, however, seems to be a daunting task for many.

Based on the above discussion, the development of creativity must be seen as essential as literacy within the ND: RBM qualification. Creativity is already a critical outcome and should thus not only be taught but also formally assessed to ensure that there is growth in the creativity levels of the students from their first- to third-year. One of the critical outcomes that should be fully embedded in the ND: RBM qualification, as stipulated in the South African Qualifications Authority's Registered Qualification document (SAQA Qualification ID: 78666), requires students to be able to: "*Identify problems and **creatively** make responsible decisions to solve problems so as to benefit the retail business and the community as a whole*". It is, therefore, essential to incorporate creativity in the RBM curriculum as a method for solving problems. This could be achieved by integrating creativity into the in-service training component of the qualification. In-service training is a practical component of the qualification where the students do not attend class but work within a retail company for five months. The in-service training has a structured component where the employers need to expose the students to all the different management aspects of the business. Creativity can be incorporated as a structured component, and the students must keep a record of all their activities and involvement with regards to their creative development in encountering retail industry-related problems. This prepares students to address complex business problems by applying creative problem-solving skills in the safety of an in-service learning environment.

The incorporation of an effective creativity skills development component and the in-service evaluation of creative problem-solving will prepare graduates in applying the necessary creativity skill to fill the scarce skills gap in the retail market as identified in the W&RSETA skills plan (2016). The well-developed creativity skills of the CPUT RBM graduates should then equip students to overcome better the challenges presented by Industry 4.0, which Musk described as a fundamental risk to the existence of human civilisation (D'Angelo, 2017).

2.6 SUMMARY

In this chapter, a literature overview was provided on creativity to provide an empirical underpinning to the research problem. This was followed by a discussion on creativity and the evaluation thereof in an educational context, and how creativity applies in RBM.

Creativity ought to be a simple notion but is at present arguably one of the most researched, diverse, and miscellaneous topics as it is applied in such a wide variety of environments. Many researchers and established business leaders have identified creativity as the critical skill to

overcome the impact of Industry 4.0 as they expect drastic unparalleled changes in the future working environment. Consequently, traditional education curricula, institutions, and systems, especially in developing countries, will have to be transformed to ensure that the required creativity levels of students are developed, expanded upon, and assessed in order to meet the specific requirements of the RBM sector and the demands presented by Industry 4.0.

Valuable insight was provided on the different creativity assessment methods available that could assist ill-prepared educators, that often tend to steer clear of committing to and assessing creativity and do not have the necessary knowledge, skills, and resources, to effectively develop the creative skills of their students. This, in turn, could increase the creativity levels of the students and provide a more challenging learning environment for both students and educators.

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CHAPTER 3
RESEARCH DESIGN, METHODOLOGY AND METHODS

3.1 INTRODUCTION

Chapter 3 provides detailed information regarding the research design, methodology, and methods used within the ambit of this research study. This chapter holds relevance to the research problem (see Chapter 1, Section 1.3):

Creativity is a crucial skill required to succeed in the competitive retail business industry; however, it is unclear to what extent the creativity skills of RBM graduates meet industry requirements.

In order to address the research problem above, the following main research question was asked:

To what extent do students meet the specified critical outcome of creativity for the RBM qualification at the CPUT?

Based on the primary research questions, the primary objective of this study was as follows:

T*o determine the extent to which students meet the specified critical outcome of creativity for the RBM qualification at the CPUT.*

This primary research objective was achieved by asking four research sub-questions (see Chapter 1, Section 1.4). A literature review was conducted (see Chapter 2) to assist with answering the research questions and consequently achieve the research objectives. A survey (see Appendix B1) was developed to conduct empirical research by collecting primary quantitative data to, in turn, be analysed and discussed in detail (see Chapter 4) with the intent of answering and addressing the research questions and achieving the research objectives (see Chapter 5).

For the remainder of this chapter, the discussion takes place under the following headings:

- Research design and methodology
- Research methods
- Research process
- Ethical considerations
- Summary

The content of Chapter 3, along with the relative positioning of the various topics which will be addressed therein, is graphically depicted in Figure 3.1 (see overleaf).

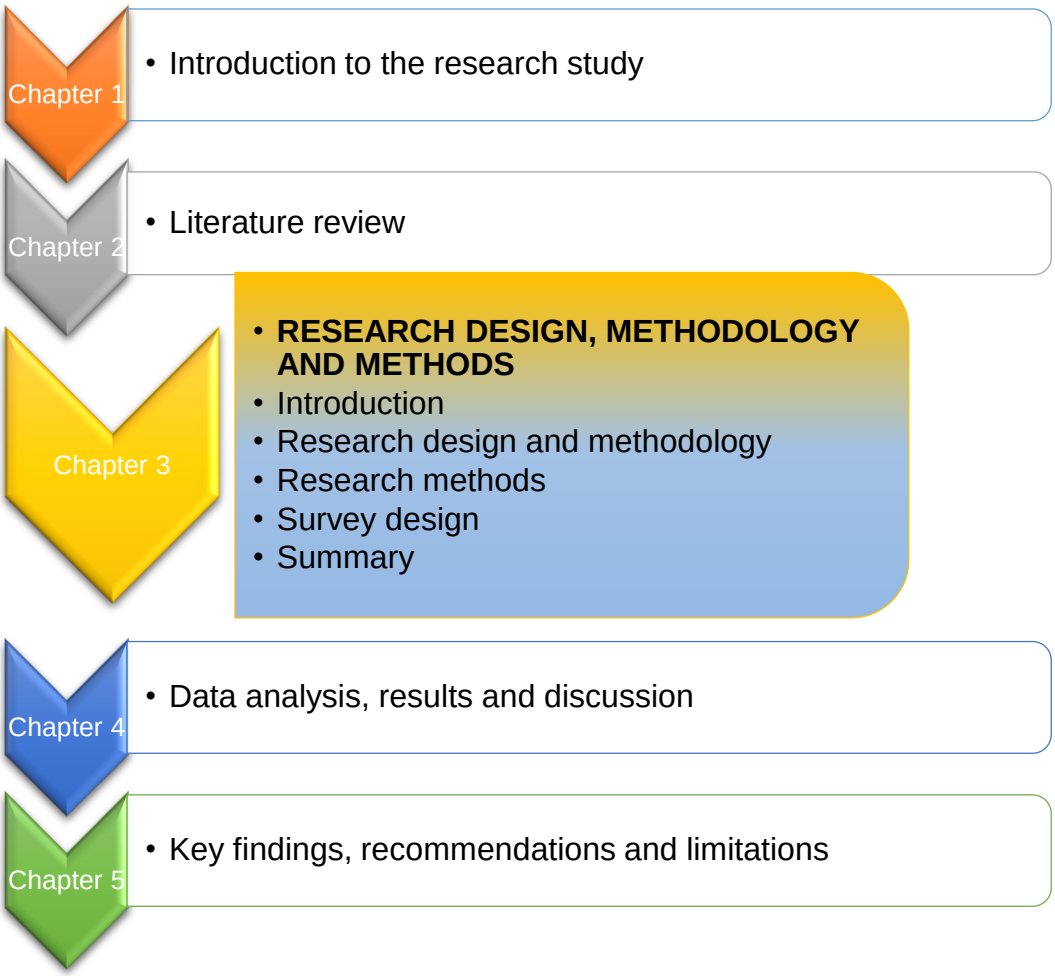

Figure 3.1: Detailed layout of Chapter 3 – Research design, methodology and methods

3.2 RESEARCH DESIGN AND METHODOLOGY

This study aimed to evaluate the creativity levels of students studying for their ND in RBM at the CPUT. The research design is undertaken to establish an overall plan for the study by stipulating what data are required, the data collection methods to be used, and how the collected data will be analysed in order to answer the research questions.

According to Welman and Kruger (2001), research design refers to a systematic plan – a type of blueprint for the collection, measurement, and analysis of data to study a research problem. Research design can be categorised into) empirical- and/or non-empirical research, primary- and/or secondary data collection, numerical- and/or textual data collection, and the control level of the data collection tools used (Mouton, 2006).

Research methodology is defined as “a systematic way to solve a problem. It is a science of studying how research is to be carried out. Essentially, the procedures by which researchers go about their work of describing, explaining and predicting phenomena” (Rajasekar, Philominathan & Chinnathambi, 2018:87). It can be concluded that research methodology is a systematic process to solve the research problem and thus gaining knowledge. “Research

methodology can either be quantitative research, qualitative research, and/or mixed-methods research" (Mouton, 2006: 164).

Research methods refer to the various tools that could be used during the research process. There are two basic forms of research methods; it can either be qualitative or quantitative, and a third option would be a combination of the two methods. Quantitative research analyses numerical data, whereas qualitative data is non-numerical data that are used to identify configurations in the data.

Cohen, Manion and Morrison (2014:47) concurred that it is "generally agreed that there are three research methods: quantitative, qualitative and mixed-method. Each method reflects a set of ontological- and epistemological assumptions. When conducting quantitative studies, researchers assume that there is a social reality external to the knower and knowledge is objective and tangible. Therefore, they view their role as observers and endeavour to detect universal laws about the relationships and regularities of the factors selected (i.e., variables) in their studies. In contrast, qualitative researchers assume that social reality exists independent of the knower and knowledge is subjective and personal".

This research study was empirical in nature, and a combination of quantitative and qualitative research methods was followed. According to Treffinger et al. (2002), data obtained from assessments to measure creativity could either be quantitative, qualitative or a combination of quantitative and qualitative data (mixed-method data) (see Sections 3.2.1 – 3.3.3 below). A survey (see Appendix B1) was used for conducting empirical research by collecting data from a targeted population group (2018 full-time students (n=525) registered for the ND: RBM qualification at the CPUT). All these students were invited to participate in the study (refer to Chapter 1, Section 1.5.4) of which a total of 159 RBM students participated in this research study. Since all the students mentioned above were invited to participate in the study, the sampling method used was twofold and included both convenience sampling and purposive sampling which are expanded upon in Section 3.3 below. Students participated in the study out of free will (voluntary participation) and could withdraw from the study at any time without any consequences.

The survey consisted of four parts that students were required to complete (see Appendix B1). Part A consisted of forty (40) statements related to creativity, and the students were requested to score themselves on a Likert scale of zero (0 – strongly agree) to five (5 – strongly disagree). Likert scale questions are used when the researcher wants to allow participants to freely express their opinions within set boundaries (Emory & Cooper, 1995).

Part B of the survey was used to verify the creativity levels of the students through open-ended non-retail related questions. Students were requested to define creativity, list as many as possible uses for a teaspoon, a chair, and paperclips. Each response was evaluated and

scored through three possibilities; low-level creativity was allocated one point, intermediate creativity was scored two points and higher-level creativity was awarded three points.

Part C of the survey consisted of activities to evaluate high levels of creativity, also referred to as Maslow's secondary creativity (Maslow, 1976). These activities included linking circles and squares, completing an incomplete picture/object, using three shapes to create one object/picture, and using additional supplied material (blank paper, paperclips, coloured pencils, and a paper bag) in demonstrating secondary creativity levels.

To ensure the validity of responses, respondents had to adhere to the following delineation criteria:

- First-year students: Only full-time first-year ND: RBM students that were registered for Business Management I (ONB102S) were invited to participate in this research study.
- Second-year students: Only full-time ND: RBM students enrolled for Retail Business Management II (ONB202S) were invited to participate in this research study.
- Third-year students: Only full-time ND: RBM students enrolled for Shopping Centre Management (SHM100S) were invited to participate in this research study.

It is important to note that only full-time students were invited to partake as most of the part-time students have working experience within the retail business industry that would have given them an unfair advantage over their full-time counterparts and skewed the creativity profile of the students.

Furthermore, all students had to acknowledge to participate in the study on the following conditions:

- They participate voluntarily.
- They give consent that the data obtained from the study may be used for research purposes only.
- They give consent that the results may be used for conference presentations and academic publications.
- That no individual feedback will be given and that results will be presented to students during 2019.
- They understood that any reference to experience, age, gender and race are purely used for statistical analysis and that no participant will be discriminated against based on these individual characteristics.
- That all questions/statements will be answered honestly and not as "what seems to be the correct/appropriate answer".

All the data obtained from respondents were captured using MS Excel, analysed by means of the Megastat software application and verified with SOFAstats. Data were analysed to show the growth in the creative skills of students between the different year groups (first- to third

year) and draw relevant conclusions regarding the creativity levels of these students per year of study. The creativity levels were also analysed concerning the choice of study, gender, and ethnicity, and a comparison was made between ND: RBM students and experienced retail business industry employees studying through the Retail Academy at the CPUT. This comparison provided valuable insight regarding the extent to which RBM graduates meet the required creativity skills as required by the retail business industry.

3.2.1 Qualitative data

According to Yilmaz (2013:311), qualitative research is difficult to define due to its "multifaceted nature underpinned by different paradigms". It was also concluded that quantitative data are based on observations, biographical information, anecdotal records, or similar efforts to view the subject and is not based on a single methodology or does not belong to a single discipline. Miles and Huberman (1994), Patton (2002), and Creswell (2003) delineate qualitative data as descriptive and anecdotal records provide a basis for in-depth analysis and discussions, including the consideration of relevant context issues. It was concluded that qualitative data could be subjected to possible biases and value interpretation by the researcher.

3.2.2 Quantitative data

Quantitative research can be explained as research that uses mathematical models and statistics to yield numerical scores or results to explain the research problem. Johnson and Christensen (2008: 101) define pure quantitative research as "the collection of quantitative data (i.e., numerical data)". Table 3.1 indicates some of the most important characteristics of quantitative research. Quantitative research is thus perceived to be more objective. Methods that could be used include standardised tests with standardised scores, fixed rating scales, and self-report inventories. Yielded scores for variables are based on clearly identified attributes, characteristics, or specific objectives; these specific scores are used for statistical treatment.

Treffinger et al. (2002: vii) stipulated that "The complex and multidimensional nature of creativity cannot be captured effectively and comprehensively by a single instrument or analytical procedure. Systematic efforts to understand creativity require a well-planned process of studying individuals or groups, including both qualitative and quantitative data."

To successfully understand and measure the creativity levels of RBM students, quantitative data were obtained from students rating their creativity levels on a fixed rating scale (see Appendix B1, Part A) ranging from zero (0 – strongly agree) to five (5 – strongly disagree). Open-ended questions in Part B of the survey was used to obtain suitable qualitative data and requested students to explain their understanding of creativity, list as many possible uses for a teaspoon, chair, and paperclips, as well as link four words in a single creative sentence. Part C of the survey consisted of activities to determine the secondary creativity profile of a student.

This was achieved by requesting students to link shapes (circles and squares), complete an incomplete object/picture, combine shapes into a single object, and use materials such as coloured pencils, paperclips, blank paper, and a brown bag (see Appendix B2).

The responses to the open-ended questions were interpreted and rated by the researcher by using a marking matrix (see Appendix B3). To address possible researcher bias in the interpretation of the qualitative data, a moderation system was implemented and utilised by the co-supervisor of the study who moderated 20 per cent of the responses to ensure the validity of the qualitative data.

Table 3.1: Features of qualitative- and quantitative research

Criteria	Qualitative research	Quantitative research
Purpose	To understand and interpret social interactions.	To investigate the hypotheses, evaluate the causes and consequences and make forecasts.
Group studied	Smaller and not randomly selected.	Larger and randomly selected.
Variables	Study of the whole, not variables.	Specific variables studied.
Type of data collected	Words, images or objects.	Numbers and statistics.
Form of data collected	Qualitative data such as open-ended responses, interviews, participant observations, field notes, and reflections.	Quantitative data based on precise measurements using structured and validated data collection instruments.
Type of data analysis	Identify patterns, features, themes.	Identify statistical relationships.
Objectivity and subjectivity	Subjectivity is expected.	Objectivity is critical.
Role of researcher	Researcher and their biases may be known to participants in the study, and participant characteristics may be known to the researcher.	Researcher and their biases are not known to participants in the study and participant characteristics are deliberately hidden from the researcher (double-blind studies).
Results	Particular or specialised findings that are less generalisable.	Generalisable findings that can be applied to other populations.
Scientific method	Exploratory or bottom-up: the researcher generates a new hypothesis and theory from the data collected.	Confirmatory or top-down: the researcher tests the hypothesis and theory with the data.
View of human behaviour	Dynamic, situational, social and personal.	Regular and predictable.
Most common research objectives	Explore, discover, and construct.	Describe, explain and predict.
Focus	Wide-angle lens; examines the breadth and depth of phenomena.	Narrow-angle lens; tests a specific hypothesis.

Criteria	Qualitative research	Quantitative research
Nature of observation	Study behaviour in a natural environment.	Study behaviour under controlled conditions; isolate causal effects.
Nature of reality	Multiple realities; subjective.	Single reality; objective.
Final report	Narrative report with contextual description and direct quotations from research participants.	Statistical report with correlations, comparisons of means and statistical significance of findings.

Source: Johnson & Christensen, 2008

3.2.3 Mixed-methods data

Mixed-method data are collected by using more than one data collection method. This research study used a combination of qualitative- and quantitative data (mixed-methods data) to assess the creativity of respondents. Creativity is a diverse and complex aspect, and the results from the mixed-method approach will yield more in-depth and comprehensive results than one single method would. Creswell (2003) stipulates that it is important for the researcher to assemble various categories/types of data to ensure that the results relate to a deeper understanding of the research problem. The study begins with a broad survey in order to generalise results to a population and then focuses, in a second phase, on detailed qualitative, open-ended interviews [or questions] to collect detailed views from participants.

Heyvaert, Maes and Onghena (2011: 1) opine that "Mixed methods research can be applied at the primary empirical study level as well as at the synthesis level". The authors recommend that mixed-method research could be used to gather data during the research process through interviews, interpretations, and questionnaires by combining these into a single research study.

In order to comprehend the intricacies and environments of social experience a qualitatively focussed approach to mixing methods offers gargantuan possibilities. "This method can draw on and extend some of the best principles of qualitative enquiry. In the process, it can benefit from ways in which qualitative researchers have sought to develop constructivist epistemologies and to engage with thorny methodological issues especially around questions of interpretation and explanation" (Mason, 2006:10).

3.3 RESEARCH METHODS

This research study made use of a survey to collect data about the creativity levels of students studying for their ND in RBM at the CPUT. According to Birley and Moreland (1998), data collection provides evidence that real research has occurred. Data collection is not just a process of collecting information; it is also a unique way of collecting information that is relevant to the research study. It is thus understood that data collection is a process to gather data that could be analysed into information to answer the research question(s) posted.

Goddard and Melville (2001) clarified that for any research method to produce relevant data that research method must be able to measure data.

For the purpose of this study, a survey was used as it is the most cost-effective and suitable method for obtaining the data for this study. The data collection could not be conducted online as the creative skills of participants were also evaluated by means of selected materials such as coloured pens, paperclips and paper that were supplied as part of the survey. To ensure that relevant data are collected, every aspect of the survey were linked to measuring data related to the research questions.

It is understood that sampling is when a part of the population is selected to represent the whole population. Baran and Jones (2016:109) claimed: “sampling is the act, process, or technique of selecting a suitable sample, or a representative part of a population for the purpose of determining parameters or characteristics of the whole population”.

According to Studyandexam (2018:Online) there are two major types of sampling:

- **Probability sampling:** “the members of the population has a known probability of being selected in the sample”.
- **Non-probability sampling:** “the members in the population does not have known probability of being selected in the sample”. Participants selected for the sample do not have an equal chance of being selected, and the researcher is required to use his/her judgement in selecting suitable participants for the study.

Table 3.2 (overleaf) displays the different types of probability- and non-probability sampling.

Table 3.2: Types of sampling

Types of sampling			
Probability sampling		**Non-probability sampling**	
Simple random sampling	Participants are selected randomly and by chance.	Purposive sampling	Participants are selected from the population on ground of the research. For example, evaluating the fitness levels of soccer players.
Stratified random sampling	The population is divided into sub-groups (strata) and participants are randomly selected from each strata.	Convenience sampling	Participants are selected because they are conveniently accessible.
Systematic sampling	Participants are selected on a fixed interval.	Snowball sampling	Also known as chain sampling. One participant identifies another participant for the study.
Cluster sampling	Segments are identified for the population and participants are randomly selected from each segment.	Quota sampling	Participants are selected on a specific characteristic. Here participants could be selected on grounds of religion, age, gender, ethnicity, qualification, profession, hobbies or interests.
Multi-stage sampling	This is a more complex method. Each cluster is further divided into sub-clusters and participants are randomly selected from each sub-cluster.		

Source: Studyandexam, 2018:Online

As the total population for this research study was known (a total of 550 students). All students who met the criteria listed in Table 3.3 (see overleaf) were invited to voluntary participate in the study. The sampling method used was twofold and included both convenience sampling and purposive sampling. As the study relates to the creativity levels expected for the retail business industry, only students registered for the ND: RBM qualification at the CPUT were invited to participate as they were conveniently accessible to the researcher. Students were requested to participate in the study voluntarily and could withdraw from the study at any time without any consequence.

Table 3.3: Students registered for the ND: RBM qualification in 2018

Subject code	Year of study	Subject name	Total students	Sample
ONB102S	First	Business Management 1	224	56
RBM200SS	Second	Retail Business Management 2	182	46
SHM100S	Third	Shopping Centre Management	144	57
		Total	**550**	**159**

For this research study, data were collected by means of a survey (see Annexure A1) from 159 respondents. All data obtained from respondents were captured in a Microsoft Excel spreadsheet and analysed with Statistical Analysis System (SAS) software. By making use of SAS, relevant descriptive- and inferential statistics were performed. Descriptive statistics were performed to display all the gleaned data in an understandable manner by means of tables and/or graphs (indicating means, medians, totals, standard deviations, etc.). Inferential statistics were performed in order to determine whether the findings acquired from the sample were generalised or whether it is applicable to the entire population.

The statistical analyses performed within the ambit of this research study, along with relevant discussion, are covered in more depth in Chapter 4.

3.4 SURVEY DESIGN

A survey was used for this research study to answer the relevant research questions and achieve appropriate research objectives.

The survey consisted of four parts (see Appendix B1). Part A consisted of forty (40) statements related to creativity and students were requested to score themselves on a Likert scale of zero (0 – strongly agree) to five (5 – strongly disagree). Part B of the survey was used to verify the creativity levels of the students through open-ended non-retail related questions. Students were requested to define creativity, list as many as possible uses for a teaspoon, a chair, and paperclips. Each response was evaluated and scored through three possibilities; low-level creativity was allocated one point, intermediate creativity was scored two points and higher-level creativity was awarded three points. Part C of the survey consisted of activities to determine the secondary creativity profile of students. Students were requested to link shapes (circles and squares) and were scored (out of seven) for the creativity they have applied in completing the task. Students also had to complete an incomplete object/picture (scored out of six), combine shapes into a single object (scored out of seven), and use given materials such as coloured pencils, paperclips, blank paper, and a brown bag (scored out of twenty) in a creative way.

The following criteria, together with the creativity assessment rubric depicted in Table 3.4, were used to assess the creativity of ND: RBM students:

- **High-level creativity**: Answers reflect advanced thinking and understanding of creativity.
- **Intermediate creativity:** Answers reflect a basic thinking ability and understanding of creativity.
- **Low-level creativity:** Answers reflect a basic understanding of creativity.

Table 3.4: Assessment rubric used for assessing creativity

	Very creative	Creative	Ordinary/Routine	Imitative
Variety of ideas and contexts	Ideas represent a startling variety of important concepts from different contexts or disciplines.	Ideas represent important concepts from different contexts or disciplines.	Ideas represent important concepts from the same or similar contexts or disciplines.	Ideas do not represent important concepts.
Variety of sources	Created product draws on a wide variety of sources, including different texts, media, resource persons, or personal experiences.	Created product draws on a variety of sources, including different texts, media, resource persons, or personal experiences.	Created product draws on a limited set of sources and media.	Created product draws on only one source or on sources that are not trustworthy or appropriate.
Combining ideas	Ideas are combined in original and surprising ways to solve a problem, address an issue, or make something new.	Ideas are combined in original ways to solve a problem, address an issue, or make something new.	Ideas are combined in ways that are derived from the thinking of others (for example, of the authors in sources consulted).	Ideas are copied or restated from the sources consulted.
Communicating something new	Created product is interesting, new, or helpful, making an original contribution that includes identifying a previously unknown problem, issue, or purpose.	Created product is interesting, new, or helpful, making an original contribution for its intended purpose (for example, solving a problem or addressing an issue).	Created product serves its intended purpose (for example, solving a problem or addressing an issue).	Created product does not serve its intended purpose (for example, solving a problem or addressing an issue).

Source: Brookhart, 2013:30–31

3.5 SUMMARY

In this chapter, the research design, research methodology and research methods applicable to this research study were discussed. This was done in an attempt to mitigate the research problem and find answers to the posed research questions as stipulated in Chapter 1.

This research study was empirical in nature. Survey research was used to collect primary research data from a targeted population group (2018 full-time students (n=525) registered for the ND: RBM qualification at the CPUT). All these students were invited to participate in the study of which a total of 159 RBM students participated in the study out of free will and could withdraw from the study at any time.

The sampling method used was twofold and included both convenience sampling and purposive sampling. Based on the research design used within the ambit of this research study, the research methodology was both quantitative and qualitative in nature. A combination of qualitative and quantitative research was motivated as the most suitable method to be used in this study as both qualitative and quantitative data are crucial for successfully determining the creativity profile of the ND: RBM students at the CPUT.

The next chapter expands upon the data obtained through the survey to show the growth in the creativity skills of students between the different year groups (first- to third year) and draw relevant conclusions regarding the creativity levels of these students per year of study.

CHAPTER 4
DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter provides the data analysis[5], results, and discussion regarding the survey that was conducted on RBM students enrolled for the ND: RBM qualification at the CPUT.

The primary objective of this research study was to determine the extent to which ND: RBM students meet the specified critical outcome of creativity within the qualification. The secondary objectives of the study were to determine:

- To what extent do the creativity levels of RBM students meet the required creativity levels of the retail industry?
- To what extent are the creativity skills of the RBM students developed over the three-year duration of the qualification?
- To what extent do gender, age, and ethnicity have an impact on the creativity levels of the RBM students?
- How does creativity influence students' choice of study?

In this chapter, data obtained from the completed survey are presented and analysed using various analyses (uni-variate, bivariate, and multivariate). In most social research studies, the analysis entails the following three major steps:

- Cleaning and organising the information collected (data preparation).
- Describe the information that was collected (descriptive statistics).
- Testing the assumptions made through hypothesis and modelling (inferential statistics).

The data have been analysed using SAS software. The data have been cleaned, re-coded (see Sections 4.3.1 – 4.3.3), and organised. Descriptive statistics such as frequency tables, which show distributions of the statement responses, are presented in Section 4.11. As a measure of central tendency and dispersion, Appendix E4 (refer to CD) in Section 4.11.4 shows the means and standard deviation of the statements with an ordinal/ratio scale of measurement. Descriptive statistics are used to summarise the data.

[5] Data analysis is "the process of bringing order, structure and meaning to the mass of collected data" (De Vos, 2002:339).

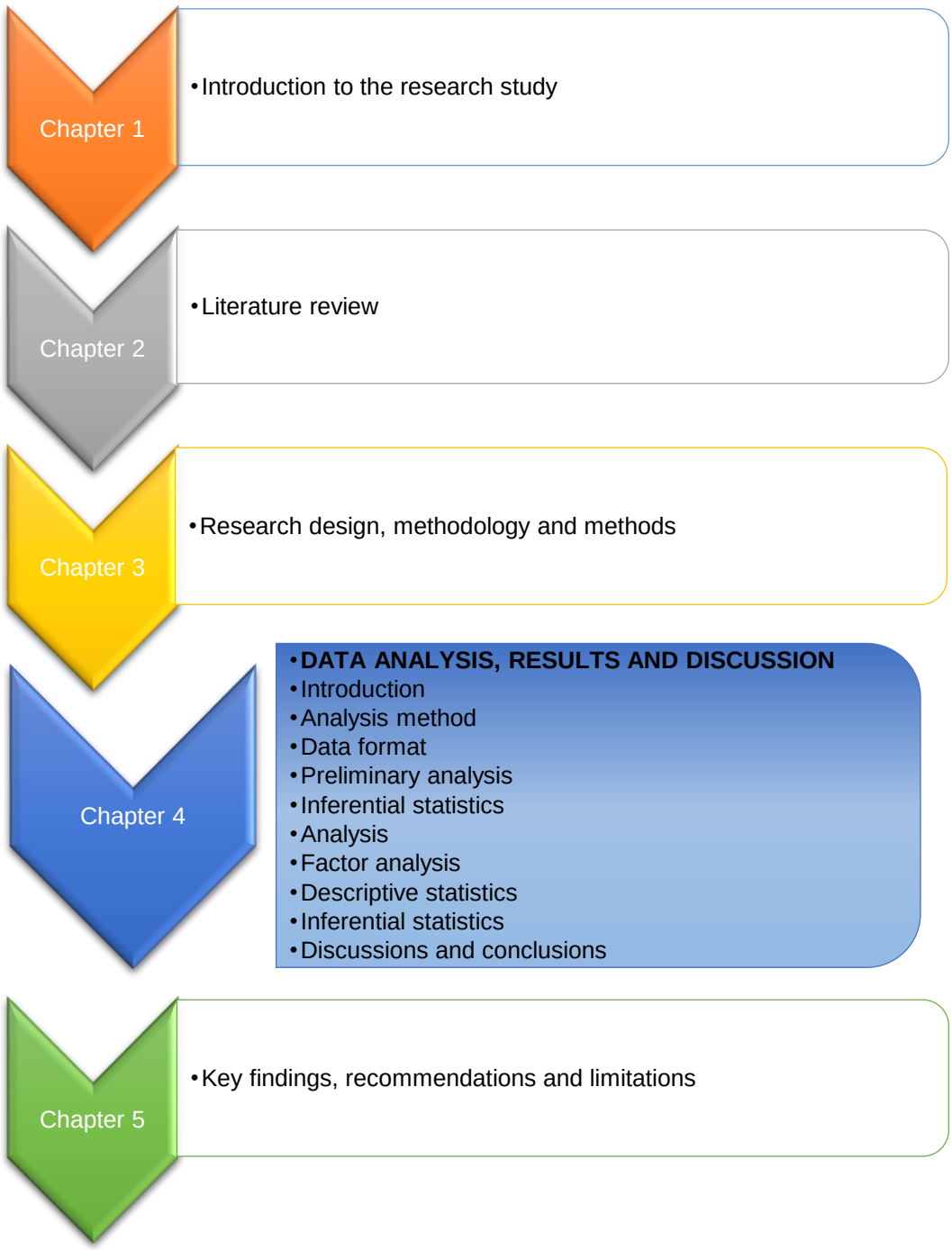

Figure 4.1: Detailed layout of Chapter 4: Data analysis, results and discussion

4.2 ANALYSIS METHOD

4.2.1 DATA VALIDATION AND VALIDATION SURVEY RESULTS

It is essential that when a structured questionnaire is used to determine the creativity of retail business management students, the questionnaire should be valid and reliable. Reliability and validity are essential concepts in research as they are used for enhancing the accuracy of the assessment and evaluation of research work (Tavakol & Dennick, 2011). Reliability refers to the consistency, stability, and repeatability of results, i.e., the result of a researcher is

considered reliable if consistent results have been obtained in identical situations but different circumstances (Twycross & Shields, 2004). Validity is concerned with whether what one is measuring is what one intends to measure (Rose & Sullivan, 1996).

For the purpose of this study, only content and construct validity will be clarified. Content validity is concerned with the representativeness or sampling adequacy of the content (e.g., topic or items) of a measuring instrument (De Vos, 2002). Construct validity refers to the extent to which a measuring instrument can be shown to measure a particular hypothetical construct. The construct validation, however, can only be taken to the point where the questionnaire measures what it is supposed to measure. Construct validation should be addressed in the planning phases of the survey and when the questionnaire is developed. Reliability will be addressed in the analysis phase of the data (information).

A descriptive analysis of the survey results returned by the research participants is reflected in Appendix E (refer to CD). The responses to the questions obtained through the questionnaires are indicated in table format for ease of reference. Each variable is tested to fall within the boundaries. Data validation is the process of ensuring that a program operates on clean, correct, and useful data.

4.3 DATA FORMAT

The questionnaire data were captured within a Microsoft Excel spreadsheet and imported into SAS. Some reformatting of the data was performed in order to have the data in an acceptable format to analyse. Take note that responses were re-coded in order to perform statistical analysis on it.

For the questions/statements in the questionnaire, the following coding was performed on the original dataset:

4.3.1 Part A – Creativity statements

In order to perform statistics on the statements in part A of the questionnaire, a value of one was added to each response, as shown in Section 4.3.1.1 below.

4.3.1.1 Scale 1: A01n – A40n

- “Strongly Disagree” is coded as 1
- “Disagree” is coded as 2
- “Moderately Disagree” is coded as 3
- “Moderately Agree” is coded as 4
- “Agree” is coded as 5
- “Strongly Agree” is coded as 6

4.3.2 Part B – Creativity statements

In Part B, for items B01_Score and B05_Score, there is one creativity scoring value for each of them. However, there are three scoring values given for items B02, B03, and B04 in the original dataset. For instance, B02n is the number of uses for a teaspoon, B02_Scoring is the sum of the creativity scores given for each use of a teaspoon, and B02_Rating is the average score (sum of creativity scores of each use/number of uses). The total score for part B is the sum of B01_Score, B02_Score, B03_Score, B04_Score, and B05_Score. However, to evaluate B02_Rating, B03_Rating, and B04_Rating, the average score of creativity for all the uses specified are shown in Section 4.3.2.1 below:

4.3.2.1 Scale 2: B02_Rating, B03_Rating, B04_Rating

- > 0 to 1 representing “Low level of creativity” is coded as 1
- > 1 to 2 representing “Intermediate creativity” is coded as 2
- > 2 representing “High level of creativity” is coded as 3
- 0 representing “Incomplete/no answer” is coded as 0

It is important to note that due to the ratings being average scores, the values range between 0 and 3 with decimal commas and thus these values are arranged as per above scale.

4.4 PRELIMINARY ANALYSIS

The reliability of the statements in the questionnaire is tested by using the Cronbach Alpha tests (see Section 4.6.2). Descriptive statistics were performed on all variables, displaying means, standard deviations, frequencies, percentages, cumulative frequencies, and cumulative percentages. These descriptive statistics are discussed in Section 4.8 (see Appendix E – refer to CD).

4.5 INFERENTIAL STATISTICS

The following inferential statistics are performed on the data:

- ***Chi-square tests*** were used for determining the association between biographical variables. Cross-tabulation and Chi-square-based measures of association, a technique for comparing two or more classification variables, were used. These tables constructed for statistical testing, are referred to as contingency tables and determine whether the classification variables are dependent. Percentages are used for two purposes; firstly, to simplify by reducing all numbers to a range of 0 to 100 and secondly, to translate the data into standard form, with a base of 100, for relative comparisons. The Chi-square (two-sample) tests are probably the most widely used non-parametric test of significance that is useful for tests involving nominal data, but it can be used for higher scales as well like cases where persons, events or objects are grouped into two or more nominal categories such as ‘yes-no’ or cases A, B, C or D.

The technique is used to test for significant differences between the observed distribution of data among categories and the expected distribution based on the null hypothesis and must be calculated with actual counts rather than percentages (Cooper & Schindler, 2001).

- ***Cronbach Alpha test***. Cronbach's Alpha is an index of reliability associated with the variation accounted for by the true score of the "underlying construct" with "construct" being the hypothetical variables that are being measured (Cooper & Schindler, 2001:216-217). More specific, Cronbach's Alpha measures how well a set of items (or variables) measures a single uni-dimensional latent construct.
- ***Kruskal-Wallis tests*** are used for interval data with more than two independent samples. The Kruskal-Wallis one-way analysis of variance by ranks is a non-parametric method for testing equality of population medians among groups. Intuitively, it is identical to a one-way analysis of variance with the data replaced by their ranks. It is an extension of the Mann-Whitney U test (Wilcoxon two-sample test) which compares two groups to three or more groups. Since it is a non-parametric method, the Kruskal-Wallis test does not assume a normal population, unlike the analogous one-way analysis of variance. However, the test does assume an identically shaped and scaled distribution for each group, except for any difference in medians.
- ***Mann-Whitney U tests or Wilcoxon rank-sum tests*** are used to test for ordinal data with two independent samples. The Mann-Whitney U test (also called the Mann-Whitney-Wilcoxon (MWW), Wilcoxon rank-sum test, or Wilcoxon-Mann-Whitney test) is a non-parametric test for assessing whether two samples of observations come from the same distribution. The null hypothesis indicates that the two samples are drawn from a single population and, therefore, that their probability distributions are equal. It requires the two samples to be independent and the observations to be ordinal or continuous measurements, i.e., one can at least say, of any two observations, which is the higher. In a less general formulation, the Wilcoxon-Mann-Whitney two-sample test may be thought of as testing the null hypothesis, which indicates that the probability of an observation from one population exceeds an observation from the second population by 0.05.
- ***Analysis of Variance (ANOVA)*** is used when you have a categorical independent variable (with two or more categories) and a normally distributed interval dependent variable and want to test for differences in the means of the dependent variable broken down by the levels of the independent variable.
- ***Bonferroni tests*** are a type of multiple comparison test used in statistical analysis. The Bonferroni test attempts to prevent data from incorrectly appearing to be statistically significant by lowering the alpha value. When conducting multiple analyses on the same dependent variable, the chance of committing a Type **I** error increases, thus increasing the likelihood of coming about a significant result by pure chance.

- A type I error occurs when the null hypothesis is true but rejected. A type I error, or false positive, is asserting something as true when it is false.

4.6 TECHNICAL REPORT WITH GRAPHICAL DISPLAYS

A written report with explanations of all variables and their outcomes were compiled. A cross-analysis of variables, where necessary, was performed, and the statistical probabilities to indicate the magnitude of differences or associations are attached in Appendices D, E, and F. All inferential statistics are discussed in Appendix F (refer to CD).

4.7 ASSISTANCE TO RESEARCHER

The statistical report validates the conclusions made by the researcher. The final report written by the researcher was validated and checked by the statistician to exclude any misleading interpretations.

4.8 SAMPLE

The target population included students registered in 2018 for the ND: RBM qualification at the CPUT. Table 4.1 indicates the realisation of the sample.

Table 4.1: Sample realisation

No.	Subject code	Subject name	Total number of students registered	Intended sample	Actual sample	Sample realisation
1.	ONB102S (Full Time)	Business Management 1	212	70	56	80.0%
2.	ONB202S (Full Time)	Business Management 2	182	60	46	76.7%
3.	SHM100S (Full Time)	Shopping Centre Management	131	44	57	129.5%
4.	Retail Store Manager	Retail Academy	17	6	16	266,6%

4.9 ANALYSIS

In total, 175 questionnaires were completed. The items (statements) in the questionnaire were tested for reliability, and the construct validity was verified as discussed in more detail below.

4.9.1 Reliability of the research instrument

Reliability and validity are essential concepts in research as they are used for enhancing the accuracy of the assessment and evaluation of research work (Tavakol & Dennick, 2011). Reliability refers to the consistency, stability, and repeatability of results, i.e., the result of a researcher is considered reliable if consistent results have been obtained in identical situations but different circumstances (Twycross & Shields, 2004). Validity is concerned with whether what one is measuring is what one intends to measure (Rose & Sullivan, 1996).

For the purpose of this study, only content and construct validity are clarified. Content validity is concerned with the representativeness or sampling adequacy of the content (e.g., topic or

items) of a measuring instrument (De Vos, 2002). Construct validity refers to the extent that a measuring instrument can be shown to measure a particular hypothetical construct.

The construct validation, however, can only be taken to the point where the questionnaire measures what it is supposed to measure. Construct validation should be addressed in the planning phases of the survey and when the questionnaire is developed. Reliability is addressed in the analysis phase of the data (information).

The reliability test (Cronbach's Alpha coefficient) was done on the items (statements) which have a Likert scale (Part A of the survey – see Appendix B1) and represent the measurement of how much the respondents agree or disagree with the statements of each question. The reliability test (Cronbach's Alpha coefficient) was also done on the five items (scoring variable in Part B) on the four items (scoring variable in Part C).

The results show the correlation between the respective items (statements) and the total sum score (without the respective item) and the internal consistency of the scale (coefficient alpha) if the respective item was to be deleted. By deleting the items (statements) one by one each time with the statement with the highest Cronbach Alpha value, the Alpha value will increase. In the right-most column of Table 4.2, it can be seen that the reliability of the scale would be higher if some of these statements were to be deleted. A value of 0.70 is the acceptable level (Nunnally, 1978).

4.9.2 Cronbach Alpha testing

4.9.2.1 Part A

When all the items (statements) of the measuring instrument for Part A are entered in the Cronbach Alpha test, it is reliable. Table 4.2 (overleaf) shows the Cronbach Alpha coefficients for the items in Part A of the study addressing creativity in general. Although it is reliable, it seems to measure multiple constructs.

Table 4.2: Cronbach's Alpha coefficients for items in Part A of questionnaire

Statements	Variable no.	Correlation with total	Cronbach's Alpha coefficient
1. Creativity is very important to be successful.	A01n	0.2667	0.7898
2. Creativity is an important component in the Retail Business Management curriculum at CPUT.	A02n	0.2770	0.7893
3. You prefer to study in a creative environment.	A03n	0.4109	0.7846
4. Creativity is not an important characteristic required to be a successful Retail Business Manager.	A04n	0.0276	0.7990
5. Creativity is a critical requirement for being a successful Retail Business Management student.	A05n	0.1755	0.7925
6. You are by nature a creative student – creativeness comes naturally to you.	A06n	0.4137	0.7839
7. Fellow students do not see you as a creative student.	A07n	-0.0182	0.8013
8. You are more creative than the average student.	A08n	0.4149	0.7844
9. You trust your judgement with your creative abilities.	A09n	0.3673	0.7861
10. You become more creative the further you progress with your studies.	A10n	0.3335	0.7877
11. You produce a number of creative ideas each week.	A11n	0.4832	0.7821
12. You are stimulated in an environment where you have the freedom to think for yourself.	A12n	0.2317	0.7905
13. You need to keep developing your skills on becoming more creative.	A13n	0.3485	0.7876
14. You are most creative when you work alone.	A14n	0.1933	0.7922
15. You use many resources in evaluating effective solutions for a problem.	A15n	0.2941	0.7888
16. Evaluations at CPUT do not test your creative abilities.	A16n	-0.1038	0.8049
17. You are normally the one in your study group that initiates new ideas or thoughts.	A17n	0.3306	0.7872
18. You rather listen to ideas from others.	A18n	0.1255	0.7951
19. You prefer to combine/alter existing ideas to generate something new.	A19n	0.3421	0.7873
20. You are most creative when working in a team.	A20n	0.1286	0.7947
21. You are excited by your own new ideas.	A21n	0.4044	0.7860
22. You are outspoken and willing to present/defend your new ideas.	A22n	0.1855	0.7919
23. Fellow students see you as unpredictable in your thinking and interpretations of situations.	A23n	0.2480	0.7900
24. You have to concentrate hard to be creative.	A24n	0.1985	0.7920
25. You enjoy challenging situations where you can prove your creativeness.	A25n	0.4573	0.7839
26. You seldom come up with ideas for solving a problem.	A26n	0.3180	0.7873
27. You always evaluate situations to find the most creative solutions.	A27n	0.4457	0.7842

Statements	Variable no.	Correlation with total	Cronbach's Alpha coefficient
28. You are creative as a result of your self-discipline.	A28n	0.5563	0.7795
29. You always find different/unusual ways of doing your daily activities.	A29n	0.3632	0.7862
30. You think outside the "box" and are happy finding solutions outside the "box".	A30n	0.4415	0.7842
31. You have specific daily time set out for creativity.	A31n	0.4074	0.7834
32. Creative ideas come to you in your dreams.	A32n	0.3003	0.7881
33. You have your own place where you work on your creativity.	A33n	0.2526	0.7903
34. You prefer to assist fellow students to be creative rather than be creative yourself.	A34n	0.1781	0.7933
35. You always solve problems with solutions that are familiar, and the outcome is known to you.	A35n	0.3081	0.7878
36. You are not given enough opportunities to show your creativity in your studies.	A36n	0.2745	0.7892
37. You are more creative when you have tight deadlines to meet.	A37n	0.2445	0.7904
38. You prefer to study following a routine.	A38n	0.1288	0.7955
39. You generate a number of possible solutions to a problem or a situation.	A39n	0.3247	0.7881
40. You are uncomfortable in taking time to solve crucial problems.	A40n	0.1644	0.7937
Cronbach's Alpha coefficient for raw variables			**0.7936**
Cronbach's Alpha coefficient for standardised variable			**0.8164**

According to the Cronbach's Alpha coefficients (see Appendix D – refer to CD), for all the items of Part A entered for the test, the values are:

- 0.7936 for raw variables; and
- 0.8164 for standardised variables;

which are more than the acceptable level of 0.70. These items thus prove to be reliable and consistent. Statements A04n, A07n, and A16n have a very low or negative correlation with the total, and if they are removed from the analysis, the overall Cronbach Alpha coefficient will be higher. For instance, if A16n is removed from the test, the overall Cronbach Alpha coefficient will increase from 0.7936 to 0.8049. This is also an indication that different constructs are measured. Questions/statements like A07n, for instance, show the opposite of creativity. In order to determine the different constructs, exploratory factor analysis was performed to identify these constructs.

4.9.2.2 Part B

When all the items (statements) of the measuring instrument for Part B were entered in the Cronbach Alpha test, it did not prove to be reliable. Table 4.3 shows the Cronbach Alpha coefficients for the items in Part B.

Table 4.3: Cronbach's Alpha coefficients for items in Part B of questionnaire

Statements	Variable no.	Correlation with total	Cronbach's Alpha coefficient
1. Explain your understanding of creativity.	B01_Score	0.3498	0.6956
2. List as many possible uses for a teaspoon - Score	B02_Score	0.7330	0.4755
3. List as many as possible uses for a chair - Score	B03_Score	0.6148	0.5463
4. You have unlimited paperclips, list as many possible uses for the paperclips - Score	B04_Score	0.5425	0.6330
5. Link the following words in one sentence: Retail, customers, bicycle and conflict - Score	B05_Score	0.1867	0.7137
Cronbach's Alpha coefficient for raw variables			**0.6831**
Cronbach's Alpha coefficient for standardised variable			**0.7070**

According to the Cronbach's Alpha coefficients (see Appendix D – refer to CD), for the scoring items in Part B entered for the test the values are:

- 0.6831 for raw variables; and
- 0.7070 for standardised variables;

which is less than the acceptable level of 0.70. These items thus prove not to be reliable and consistent. If B05_Score is removed from the test, the four items left will have acceptable reliability of 0.7137.

4.9.2.3 Part C

When all the items (statements) of the measuring instrument for Part C were entered in the Cronbach Alpha test, it did not prove to be reliable. Table 4.4 below shows the Cronbach Alpha coefficients for the items in Part C.

Table 4.4: Cronbach's Alpha coefficients for items in Part C of questionnaire

Statements	Variable no.	Correlation with total	Cronbach's Alpha coefficient
1. Section 1 (Score out of 7)	C01_Score	0.2367	0.2093
2. Section 2 (Score out of 6)	C02_Score	0.3003	0.1589
3. Section 3 (Score out of 7)	C03_Score	0.2994	0.1621
4. Section 4 (Score out of 20)	C04_Score	0.1147	0.7007
Cronbach's Alpha coefficient for raw variables			**0.2775**
Cronbach's Alpha coefficient for standardised variable			**0.5855**

According to the Cronbach's Alpha coefficients (see Appendix D – refer to CD), for the scoring items in Part C entered for the test the values are:

- 0.2775 for raw variables; and
- 0.5855 for standardised variables;

which is less than the acceptable level of 0.70. These items thus prove not to be reliable and consistent. If C04_Score is removed from the test, the four items left will have acceptable reliability of 0.7007.

4.10 FACTOR ANALYSIS

Exploratory factor analysis was performed on the 40 statements/items of Part A in order to investigate the factor structure underlying the set of original observed variables, as well as assess the construct validity that represents the measurements regarding the assumed latent variables.

Per definition, factor analysis identifies the nature and number of latent factors responsible for covariation in data analysis. The final results, including the rotated factor pattern (Varimax rotation) and communality estimates of the exploratory factor analysis, are discussed in the next sections, and the software generated tables are presented in Appendix D (refer to CD). The commonality refers to the per cent of variance in an observed variable that is accounted for by the retained factors (Hatcher, 1994).

Reliability tests (Cronbach's Alpha coefficient) were done on each of the concepts (factors) being tested in the research study.

4.10.1 Results of factor analysis

The Kaiser-Meyer measure of sampling adequacy was performed on the items (statements) measuring the creativity level of RBM students and respondents from the retail academy in order to determine whether a factor analysis is appropriate for the data. The MSA (Measure of Sampling Adequacy) was 0.7170, which is adequate to perform a factor analysis (Kaiser, 1974). A scree test suggested six meaningful factors, so only these factors were retained for rotation.

The factor analysis was done in order to determine the underlying structure of the measuring instrument and to group statements with similar constructs. It should be noted that a sample of five respondents for at least every statement entered is needed to make the factor analysis valid. For refinement of the measuring instrument, further research using a much larger sample is recommended in order to perform factor analysis on the statements that describe one concept.

Table 4.5: Rotation factor pattern matrix

No.	Factors						Final communality estimates	Question/ statement no.
	1	2	3	4	5	6		
1.	64	8	-6	6	14	-25	0.5049	A30n
2.	61	-5	11	-4	-9	12	0.4136	A09n
3.	61	13	3	9	-16	17	0.4527	**A08n**
4.	57	0	2	22	2	0	0.3668	A21n
5.	55	8	24	8	6	-18	0.4093	A25n
6.	53	15	18	-3	8	-2	0.3483	A11n
7.	53	8	7	-1	30	-23	0.4372	A27n
8.	52	12	7	18	-6	2	0.3199	A06n
9.	47	40	16	13	16	-10	0.4533	A28n
10.	46	-4	0	31	1	6	0.3125	A17n
11.	46	15	3	16	4	-2	0.2629	A29n
12.	45	2	41	-9	-2	15	0.4015	A03n
13.	45	-18	6	-19	1	-29	0.3586	A22n
14.	40	-3	1	-9	9	-4	0.4127	A23n
15.	35	14	7	-25	23	-21	0.3019	A39n
16.	34	-5	9	-7	12	-1	0.1384	A12n
17.	21	63	-9	14	-2	5	0.4637	A31n
18.	-9	52	-10	-13	8	-1	0.3145	A38n
19.	10	49	15	0	2	9	0.2779	A26n
20.	4	48	10	24	-3	-9	0.3033	A33n
21.	8	41	-3	19	20	-1	0.2563	A35n
22.	-7	40	22	16	18	10	0.2824	A24n
23.	7	19	57	0	21	2	0.4129	A13n
24.	16	8	53	-11	-2	-7	0.3331	A01n
25.	13	-18	51	2	8	10	0.3246	A05n
26.	40	10	50	-8	-22	-2	0.4781	A10n
27.	2	23	47	-1	25	-15	0.3535	A02n
28.	2	25	-39	-19	10	21	0.3066	A04n
29.	21	26	-4	50	7	2	0.3642	A32n
30.	17	12	5	44	6	1	0.2417	A14n
31.	11	12	10	-54	11	0	0.3448	A20n
32.	-11	17	20	4	40	-4	0.2429	A34n
33.	10	-7	0	-8	38	6	0.1737	A40n
34.	12	14	-4	17	37	10	0.2160	A37n
35.	12	21	22	-15	37	16	0.2933	A19n
36.	35	-9	-7	7	13	55	0.4661	A36n
37.	-19	12	0	-2	6	38	0.1968	A07n
38.	-4	-33	-16	21	17	35	0.3348	A16n
39.	-16	15	28	-1	34	34	0.3578	A18n
40.	30	1	-2	9	36	-36	0.3540	A15n

**Note that all the loadings are multiplied by a 100 and rounded to the nearest integer.*

Measurements were subjected to an exploratory factor analysis using squared multiple correlations (SMC) as prior communality estimates. The Principal Factor method was used to extract the factors. A scree test suggested six meaningful factors. These factors explain collectively 82.2 per cent of the variance of the set of items that were entered in the analysis. All the items, except items A04n, A07n, A12n, A15n, A16n, A18n, A19n, A23n, A24n, A34n, A37n, A39n, and A40n loaded on á factor.

In interpreting the factor pattern, an item was said to load on a given factor if the factor loading was 0.4 or higher for that factor and less than 0.4 for the other. In total, 13 items were loaded

on factor 1, according to the abovementioned criteria. Five items were loaded on factor 2 and factor 3, three items were loaded on factor 4, no items were loaded on factor 5, and 1 was item loaded on factor 6.

Since there were items that were not loaded on any factor, the factor analysis was repeated for only the items that were loaded on a factor. A scree test suggested three meaningful factors for these items. These factors explain collectively 82.6 per cent of the variance of the set of items that were entered in the analysis. All the items, except items A14n, A20n, A22n, and A36n, loaded on á factor.

In interpreting the factor pattern, an item was said to load on a given factor if the factor loading was 0.4 or higher for that factor and less than 0.4 for the other. In total, 11 items were loaded on factor 1, according to the abovementioned criteria. These 11 items were also subjected to Cronbach Alpha testing in order to determine the reliability of the construct. Six items were loaded on factor 2 and factor 3.

After repeating the abovementioned process without the four items which did not load on a factor in the second iteration of the factor analysis, all the items entered were loaded on a factor. According to the statement descriptions, factor 1 represents “Positive creativity enforcements”, factor 2 represents “Creativity development”, and factor 3 represents “Negative creativity enforcement”. The results of the Cronbach Alpha tests for the items which loaded on these three factors are shown in Table 4.6 below. Detailed data for these factor analyses are attached in Appendix D (refer to CD).

Table 4.6: Reliability tests for the different roles

Concepts	Cronbach Alpha coefficients	Internal consistency
1. Factor 1 – Positive creativity enforcement	0.8290	Good
2. Factor 2 – Creativity development	0.6923	Unacceptable
3. Factor 3 – Negative creativity enforcement	0.6668	Unacceptable

In order to get a total score of creativity for Part A of the survey, the creativity statements/items for the above constructs (factors) were taken into consideration. The scores for statements/items in factor 1 and 2 were added together, and the scores for factor 3 were subtracted. The reason for this is that factors 1 and 2 measure positive enforcement of creativity and factor 3 measures negative enforcement of creativity. Due to the Cronbach Alpha’s for factor 2 and 3 being unacceptable, the sum of the statements/items for factor 1 was also used as a measure for creativity. Table 4.7 (see overleaf) shows the different total scores for Part A of the study.

Table 4.7: Creativity scoring variables for Part A

Total score variable description and variable name	Statement/Item scores added	Statement/Item scores subtracted
1. Original total score = **A_Score**	A01 A02 A03 A04 A05 A06 A07 A08 A09 A10 A11 A12 A13 A14 A15 A16 A17 A18 A19 A20 A21 A22 A23 A24 A25 A26 A27 A28 A29 A30 A31 A32 A33 A34 A35 A36 A37 A38 A39 A40	
2. Total score after 1 was added = **A_Scoren**	A01n A02n A03n A04n A05n A06n A07n A08n A09n A10n A11n A12n A13n A14n A15n A16n A17n A18n A19n A20n A21n A22n A23n A24n A25n A26n A27n A28n A29n A30n A31n A32n A33n A34n A35n A36n A37n A38n A39n A40n	
3. Total score subtracting negative creativity as per original assumptions = **A_Scorenn**	A01n A02n A03n A04n A05n A06n A08n A09n A10n A11n A12n A13n A14n A17n A19n A20n A21n A22n A23n A25n A27n A28n A29n A30n A32n A34n A37n A39n A40n	A04n A07n A15n A16n A18n A24n A26n A31n A33n A35n A36n A38n
4. Total scores adding all items which were loaded on one of the three factors = **A_Scoref**	A01n A02n A03n A05n A06n A08n A09n A10n A11n A13n A17n A21n A25n A26n A27n A28n A29n A30n A31n A32n A33n A35n A38n	
5. Total scores adding all items of factor 1 and 2 and subtracting items of factor 3 = **A_Scorefn**	A01n A02n A03n A05n A06n A08n A09n A10n A11n A13n A17n A21n A25n A27n A28n A29n A30n	A26n A31n A32n A33n A35n A38n
6. Total scores adding all items of factor 1 = **A_Scorefp**	A06n A08n A09n A11n A17n A21n A25n A27n A28n A29n A30n	

Thus, there are seven total scores (combined A, B, and C scores), including the scores for creativity when Part B and Part C are combined. Inferential statistics were performed on all these total scores.

4.11 DESCRIPTIVE STATISTICS

4.11.1 Frequency analysis of biographic variables

Table 4.8 (see overleaf) shows the descriptive statistics for the biographic variables in the survey, with the frequencies in each category and the percentage for the total number of questionnaires completed. It is important to note that the descriptive statistics are based on the total sample (see Appendix E – refer to CD).

Table 4.8: Descriptive statistics for the biographic variables

Variables	Categories	Frequency	Percentage out of total
Age	18 years	16	9.1%
	19 years	25	14.3%
	20 years	50	28.6%
	21 years	20	11.4%
	22 years	20	11.4%
	23-24 years	18	10.3%
	25-30 years	12	6.9%
	31-40 years	9	5.1%
	41-60 years	5	2.9%
Gender	Female	109	62.3%
	Male	66	37.7%
Race	African	14	8.0%
	Asian	1	0.6%
	Black	122	69.7%
	Coloured	17	9.7%
	Did not indicate race	1	0.6%
	Mixed	2	1.1%
	South African	3	1.7%
	White	15	8.6%
Retail experience	None	114	65.1%
	1-3 years	36	20.6%
	4-6 years	6	3.4%
	7-9 years	8	4.6%
	10+ years	10	5.7%
	Unknown	1	0.6%
Matric results	62.40%	1	0.6%
	B	7	4.0%
	Bachelor	89	50.9%
	D	4	2.3%
	Diploma	26	14.9%
	H	1	0.6%
	Higher certificate	1	0.6%
	Incomplete	1	0.6%
	NQF Level 4	1	0.6%
	Passed	3	1.7%
	Unknown	41	23.4%
Survey groups	First years	56	32.0%
	Second years	46	26.3%
	Third years	57	32.6%
	Retail Academy	16	9.1%

4.11.2 Frequency analysis for all statements in Part A of the questionnaire

Table 4.9 (see overleaf) shows the descriptive statistics for all the questions/statements in Part A of the questionnaire, with the frequencies in each category and the percentage for the total number of questionnaires completed. It is of importance to note that the descriptive statistics are based on the total sample (see Appendix E – refer to CD).

Table 4.9: Descriptive statistics for the variables in Part A of the questionnaire

Variables	Categories	Frequency	Percentage out of total
1. Creativity is very important to be successful.	Strongly disagree	2	1.1%
	Disagree	0	0.0%
	Moderately disagree	2	1.1%
	Moderately agree	20	11.4%
	Agree	63	36.0%
	Strongly agree	88	50.3%
2. Creativity is an important component in the Retail Business Management curriculum at CPUT.	Strongly disagree	2	1.1%
	Disagree	2	1.1%
	Moderately disagree	6	3.4%
	Moderately agree	35	20.0%
	Agree	71	40.6%
	Strongly agree	59	33.7%
3. You prefer to study in a creative environment.	Strongly disagree	3	1.7%
	Disagree	3	1.7%
	Moderately disagree	10	5.7%
	Moderately agree	26	14.9%
	Agree	41	23.4%
	Strongly agree	92	52.6%
4. Creativity is not an important characteristic required to be a successful Retail Business Manager.	Strongly disagree	62	35.4%
	Disagree	41	23.4%
	Moderately disagree	34	19.4%
	Moderately agree	21	12.0%
	Agree	8	4.6%
	Strongly agree	9	5.1%
5. Creativity is a critical requirement for being a successful Retail Business Management student.	Strongly disagree	5	2.9%
	Disagree	7	4.0%
	Moderately disagree	8	4.6%
	Moderately agree	48	27.4%
	Agree	50	28.6%
	Strongly agree	57	32.6%
6. You are by nature a creative student – creativeness comes naturally to you.	Strongly disagree	8	4.6%
	Disagree	8	4.6%
	Moderately disagree	20	11.4%
	Moderately agree	59	33.7%
	Agree	45	25.7%
	Strongly agree	35	20.0%
7. Fellow students do not see you as a creative student.	Strongly disagree	22	12.6%
	Disagree	28	16.0%
	Moderately disagree	29	16.6%
	Moderately agree	57	32.6%
	Agree	18	10.3%
	Strongly agree	21	12.0%
8. You are more creative than the average student.	Strongly disagree	7	4.0%
	Disagree	10	5.7%
	Moderately disagree	32	18.3%
	Moderately agree	72	41.1%
	Agree	38	21.7%
	Strongly agree	16	9.1%

Variables	Categories	Frequency	Percentage out of total
9. You trust your judgement with your creative abilities.	Strongly disagree	4	2.3%
	Disagree	7	4.0%
	Moderately disagree	5	2.9%
	Moderately agree	36	20.6%
	Agree	74	42.3%
	Strongly agree	49	28.0%
10. You become more creative the further you progress with your studies.	Strongly disagree	1	0.6%
	Disagree	3	1.7%
	Moderately disagree	3	1.7%
	Moderately agree	31	17.7%
	Agree	46	26.3%
	Strongly agree	91	52.0%
11. You produce a number of creative ideas each week.	Strongly disagree	5	2.9%
	Disagree	11	6.3%
	Moderately disagree	29	16.6%
	Moderately agree	76	43.4%
	Agree	32	18.3%
	Strongly agree	22	12.6%
12. You are stimulated in an environment where you have the freedom to think for yourself.	Strongly disagree	2	1.1%
	Disagree	0	0.0%
	Moderately disagree	13	7.4%
	Moderately agree	41	23.4%
	Agree	45	25.7%
	Strongly agree	74	42.3%
13. You need to keep developing your skills on becoming more creative.	Strongly disagree	3	1.7%
	Disagree	0	0.0%
	Moderately disagree	2	1.1%
	Moderately agree	15	8.6%
	Agree	43	24.6%
	Strongly agree	112	64.0%
14. You are most creative when you work alone.	Strongly disagree	6	3.4%
	Disagree	9	5.1%
	Moderately disagree	21	12.0%
	Moderately agree	40	22.9%
	Agree	40	22.9%
	Strongly agree	59	33.7%
15. You use many resources in evaluating effective solutions for a problem.	Strongly disagree	2	1.1%
	Disagree	0	0.0%
	Moderately disagree	15	8.6%
	Moderately agree	50	28.6%
	Agree	64	36.6%
	Strongly agree	44	25.1%
16. Evaluations at CPUT do not test your creative abilities.	Strongly disagree	25	14.3%
	Disagree	21	12.0%
	Moderately disagree	51	29.1%
	Moderately agree	36	20.6%
	Agree	21	12.0%
	Strongly agree	21	12.0%

Variables	Categories	Frequency	Percentage out of total
17. You are normally the one in your study group that initiates new ideas or thoughts.	Strongly disagree	4	2.3%
	Disagree	10	5.7%
	Moderately disagree	23	13.1%
	Moderately agree	71	40.6%
	Agree	41	23.4%
	Strongly agree	26	14.9%
18. You rather listen to ideas from others.	Strongly disagree	18	10.3%
	Disagree	21	12.0%
	Moderately disagree	44	25.1%
	Moderately agree	46	26.3%
	Agree	26	14.9%
	Strongly agree	20	11.4%
19. You prefer to combine/alter existing ideas to generate something new.	Strongly disagree	0	0.0%
	Disagree	5	2.9%
	Moderately disagree	10	5.7%
	Moderately agree	35	20.0%
	Agree	64	36.6%
	Strongly agree	61	34.9%
20. You are most creative when working in a team.	Strongly disagree	5	2.9%
	Disagree	13	7.4%
	Moderately disagree	23	13.1%
	Moderately agree	45	25.7%
	Agree	35	20.0%
	Strongly agree	54	30.9%
21. You are excited by your own new ideas.	Strongly disagree	2	1.1%
	Disagree	0	0.0%
	Moderately disagree	4	2.3%
	Moderately agree	32	18.3%
	Agree	55	31.4%
	Strongly agree	82	46.9%
22. You are outspoken and willing to present/defend your new ideas.	Strongly disagree	0	0.0%
	Disagree	7	4.0%
	Moderately disagree	13	7.4%
	Moderately agree	36	20.6%
	Agree	53	30.3%
	Strongly agree	66	37.7%
23. Fellow students see you as unpredictable in your thinking and interpretations of situations.	Strongly disagree	5	2.9%
	Disagree	9	5.1%
	Moderately disagree	36	20.6%
	Moderately agree	58	33.1%
	Agree	33	18.9%
	Strongly agree	33	18.9%
	Unknown	1	0.6%
24. You have to concentrate hard to be creative.	Strongly disagree	7	4.0%
	Disagree	8	4.6%
	Moderately disagree	25	14.3%
	Moderately agree	46	26.3%
	Agree	37	21.1%
	Strongly agree	52	29.7%

25. You enjoy challenging situations where you can prove your creativeness.	Strongly disagree	3	1.7%
	Disagree	2	1.1%
	Moderately disagree	3	1.7%
	Moderately agree	35	20.0%
	Agree	59	33.7%
	Strongly agree	73	41.7%
26. You seldom come up with ideas for solving a problem.	Strongly disagree	12	6.9%
	Disagree	19	10.9%
	Moderately disagree	29	16.6%
	Moderately agree	47	26.9%
	Agree	54	30.9%
	Strongly agree	14	8.0%
27. You always evaluate situations to find the most creative solutions.	Strongly disagree	2	1.1%
	Disagree	1	0.6%
	Moderately disagree	13	7.4%
	Moderately agree	52	29.7%
	Agree	56	32.0%
	Strongly agree	51	29.1%
28. You are creative as a result of your self-discipline.	Strongly disagree	3	1.7%
	Disagree	6	3.4%
	Moderately disagree	14	8.0%
	Moderately agree	37	21.1%
	Agree	60	34.3%
	Strongly agree	55	31.4%
29. You always find different/unusual ways of doing your daily activities.	Strongly disagree	2	1.1%
	Disagree	6	3.4%
	Moderately disagree	19	10.9%
	Moderately agree	63	36.0%
	Agree	43	24.6%
	Strongly agree	42	24.0%
30. You think outside the “box” and are happy finding solutions outside the “box”.	Strongly disagree	2	1.1%
	Disagree	2	1.1%
	Moderately disagree	13	7.4%
	Moderately agree	54	30.9%
	Agree	54	30.9%
	Strongly agree	50	28.6%
31. You have specific daily time set out for creativity.	Strongly disagree	33	18.9%
	Disagree	31	17.7%
	Moderately disagree	41	23.4%
	Moderately agree	37	21.1%
	Agree	19	10.9%
	Strongly agree	14	8.0%
32. Creative ideas come to you in your dreams.	Strongly disagree	39	22.3%
	Disagree	37	21.1%
	Moderately disagree	38	21.7%
	Moderately agree	27	15.4%
	Agree	22	12.6%
	Strongly agree	12	6.9%

33. You have your own place where you work on your creativity.	Strongly disagree	38	21.7%
	Disagree	24	13.7%
	Moderately disagree	39	22.3%
	Moderately agree	33	18.9%
	Agree	24	13.7%
	Strongly agree	17	9.7%
34. You prefer to assist fellow students to be creative rather than be creative yourself.	Strongly disagree	20	11.4%
	Disagree	32	18.3%
	Moderately disagree	34	19.4%
	Moderately agree	49	28.0%
	Agree	15	8.6%
	Strongly agree	25	14.3%
35. You always solve problems with solutions that are familiar, and the outcome is known to you.	Strongly disagree	4	2.3%
	Disagree	13	7.4%
	Moderately disagree	30	17.1%
	Moderately agree	47	26.9%
	Agree	47	26.9%
	Strongly agree	34	19.4%
36. You are not given enough opportunities to show your creativity in your studies.	Strongly disagree	14	8.0%
	Disagree	19	10.9%
	Moderately disagree	27	15.4%
	Moderately agree	47	26.9%
	Agree	32	18.3%
	Strongly agree	36	20.6%
37. You are more creative when you have tight deadlines to meet.	Strongly disagree	9	5.1%
	Disagree	16	9.1%
	Moderately disagree	22	12.6%
	Moderately agree	38	21.7%
	Agree	34	19.4%
	Strongly agree	56	32.0%
38. You prefer to study following a routine.	Strongly disagree	11	6.3%
	Disagree	17	9.7%
	Moderately disagree	24	13.7%
	Moderately agree	33	18.9%
	Agree	41	23.4%
	Strongly agree	49	28.0%
39. You generate a number of possible solutions to a problem or a situation.	Strongly disagree	0	0.0%
	Disagree	4	2.3%
	Moderately disagree	8	4.6%
	Moderately agree	62	35.4%
	Agree	58	33.1%
	Strongly agree	43	24.6%
40. You are uncomfortable in taking time to solve crucial problems.	Strongly disagree	20	11.41%
	Disagree	16	9.1%
	Moderately disagree	41	23.4%
	Moderately agree	47	26.9%
	Agree	29	16.6%
	Strongly agree	22	12.6%

4.11.3 Frequency analysis for average ratings in Part B of the questionnaire

Table 4.10 shows the descriptive statistics for the rating of questions B02, B03, and B04 in Part B of the questionnaire, with the frequencies in each category and the percentage for the total number of questionnaires completed. The descriptive statistics are based on the total sample (see Appendix E – refer to CD).

Table 4.10: Descriptive statistics for the rating variables in Part B of the questionnaire

Variables	Categories	Frequency	Percentage out of total
1. List as many possible uses for a teaspoon. Average rating of creativity.	No answer	2	1.1%
	Low creativity	62	35.4%
	Intermediate creativity	85	48.6%
	High creativity	26	14.9%
2. List as many as possible uses for a chair. Average rating of creativity.	No answer	4	2.3%
	Low creativity	68	38.9%
	Intermediate creativity	86	49.1%
	High creativity	17	9.7%
3. You have unlimited paperclips, list as many possible uses for the paperclip. Average rating of creativity.	No answer	12	6.9%
	Low creativity	55	31.4%
	Intermediate creativity	71	40.6%
	High creativity	37	21.1%

4.11.4 Central tendency

The central tendency indicates how the data cluster around the centre value through the mean, median, and mode. The objective is to determine the centre of various distributions and, therefore, to get a better understanding of the distribution of the data related to the centre value on a graph (Singla, 2014). Table 4.11 (see overleaf) shows the central tendency of continues biographic- and scoring variables that were obtained from the survey.

Table 4.11: Central tendency of continuous biographic variables and scoring variables

Variables	N	Mean	Standard Deviation	Median	Range
Biographic variables					
Age	175	22.30	5.8695	20.0	41.0
Retail Experience	174	1.82	4.4643	0.0	30.0
PART A					
1. Creativity is very important to be successful.	175	5.32	0.8646	6.00	5.00
2. Creativity is an important component in the Retail Business Management curriculum at CPUT.	175	4.99	0.9825	5.00	5.00
3. You prefer to study in a creative environment.	175	5.14	1.1483	6.00	5.00
4. Creativity is an important characteristic required to be a successful Retail Business Manager.	175	2.42	1.4478	2.00	5.00
5. Creativity is a critical requirement for being a successful Retail Business Management student.	175	4.73	1.2384	5.00	5.00
6. You are by nature a creative student – creativeness comes naturally to you.	175	4.31	1.2948	4.00	5.00
7. Fellow students see you as a creative student.	175	3.48	1.5042	4.00	5.00
8. You are more creative than the average student.	175	3.98	1.670	4.00	5.00
9. You trust your judgement with your creative abilities.	175	4.81	1.1381	5.00	5.00
10. You become more creative the further you progress with your studies.	175	5.23	0.9808	6.00	5.00
11. You produce a number of creative ideas each week.	175	4.06	1.1681	4.00	5.00
12. You are stimulated in an environment where you have the freedom to think for yourself.	175	4.99	1.0694	5.00	5.00
13. You need to keep developing your skills on becoming more creative.	175	5.46	0.9145	6.00	5.00
14. You are most creative when you work alone.	175	4.58	1.3745	5.00	5.00
15. You use many resources in evaluating effective solutions for a problem.	175	4.75	1.0027	5.00	5.00
16. Evaluations at CPUT test your creative abilities.	175	3.40	1.5200	3.00	5.00
17. You are normally the one in your study group that initiates new ideas or thoughts.	175	4.22	1.6340	4.00	5.00
18. You rather listen to ideas from others.	175	3.58	1.4478	4.00	5.00
19. You prefer to combine/alter existing ideas to generate something new.	175	4.95	1.0186	5.00	4.00
20. You are most creative when working in a team.	175	4.45	1.3882	5.00	5.00
21. You are excited by your own new ideas.	175	5.19	0.9450	5.00	5.00
22. You are outspoken and willing to present/defend your new ideas.	175	4.90	1.1125	5.00	4.00
23. Fellow students see you as un-predictable in your thinking and interpretations of situations.	174	4.17	1.1250	4.00	5.00
24. You have to concentrate hard to be creative.	175	4.45	1.3758	5.00	5.00
25. You enjoy challenging situations where you can prove your creativeness.	175	5.08	1.0308	5.00	5.00

Variables	N	Mean	Standard Deviation	Median	Range
26. You seldom come up with ideas for solving a problem.	175	3.88	1.3571	4.00	5.00
27. You always evaluate situations to find the most creative solutions.	175	4.78	1.0388	5.00	5.00
28. You are creative as a result of your self-discipline.	175	4.77	1.1765	5.00	5.00
29. You always find different/un-usual ways of doing your daily activities.	175	4.51	1.1390	4.00	5.00
30. You think outside the “box” and are happy finding solutions outside the “box”.	175	4.75	1.0585	5.00	5.00
31. You have specific daily time set out for creativity.	175	3.11	1.5157	3.00	5.00
32. Creative ideas come to you in your dreams.	175	2.95	1.5455	3.00	5.00
33. You have your own place where you work on your creativity.	175	3.18	1.6120	3.00	5.00
34. You prefer to assist fellow students to be creative rather than be creative yourself.	175	3.47	1.5305	4.00	5.00
35. You always solve problems with solutions that are familiar, and the outcome is known to you.	175	4.27	1.2874	4.00	5.00
36. You are not given enough opportunities to show your creativity in your studies.	175	3.98	1.5255	4.00	5.00
37. You are more creative when you have tight deadlines to meet.	175	4.37	1.5178	5.00	5.00
38. You prefer to study following a routine	175	4.27	1.5441	5.00	5.00
39. You generate a number of possible solutions to a problem or a situation.	175	4.73	0.9600	5.00	4.00
40. You are uncomfortable in taking time to solve crucial problems.	175	3.66	1.4806	4.00	5.00
PART B					
1. Explain your understanding of creativity. Score	175	4.84	1.8407	5.00	11.00
2. List as many possible uses for a teaspoon. Number.	175	5.70	3.1540	5.00	19.00
3. List as many possible uses for a teaspoon. Score	175	9.09	6.8371	7.00	39.00
4. List as many possible uses for a teaspoon. Average rating of creativity.	175	1.47	0.5514	1.33	3.67
5. List as many as possible uses for a chair. Number	175	5.11	2.9280	5.00	20.00
6. List as many as possible uses for a chair. Score	175	7.71	6.4948	6.00	46.00
7. List as many as possible uses for a chair. Average rating of creativity	175	1.38	0.5511	1.29	3.44
8. You have unlimited paperclips, list as many possible uses for the paperclip. Number	175	4.43	4.0845	4.00	36.00
9. You have unlimited paperclips, list as many possible uses for the paperclip. Score	175	7.79	9.6979	5.00	72.00
10. You have unlimited paperclips, list as many possible uses for the paperclip. Average rating of creativity	175	1.47	0.7099	1.40	3.33
11. Link the following words in one sentence: Retail, customers, bicycle and conflict. Score	175	4.50	1.9264	5.00	10.00

PART C					
1. Creativity score out of 7	175	2.15	1.2779	2.00	6.00
2. Creativity score out of 6	175	2.26	1.4462	2.00	6.00
3. Creativity score out of 7	175	2.21	1.4207	2.00	6.00
4. Creativity score out of 20	175	5.70	5.3641	5.00	16.00
TOTAL SCORES					
1. A_Score = Original score for Part A	175	133.29	16.8373	134.00	86.00
2. A_Scoren = Add 1 to all scores	175	173.33	16.8221	175.00	86.00
3. A_Scorenn = Subtracting scores for negative enforcement of creativity	175	83.77	13.4231	86.00	79.00
4. A_Scoref = Add scores of items loaded on any factor	175	103.02	12.3965	104.00	62.00
5. A_Scorefn = Subtracting scores of items for negative enforcements of creativity	175	59.67	9.7015	60.00	58.00
6. A_Scorefp = Add scores of items for positive enforcements of creativity	175	50.47	7.5084	52.00	47.00
7. B_Score	175	32.27	20.6251	27.00	125.00
8. C_Score	175	12.33	6.6022	12.00	29.00
9. Total_Score = A_Score+B_Score+C_Score	175	177.89	26.7709	179.00	173.00
10. Total _Scoren = A_Scoren+B_Score+C_Score	175	217.93	26.7793	219.00	173.00
11. Total _Scorenn = A_Scorenn+B_Score+C_Score	175	128.37	28.4947	127.00	199.300
12. Total _Scoref = A_Scoref+B_Score+C_Score	175	147.62	25.0470	146.00	168.00
13. Total _Scorefn = A_Scorefn+B_Score+C_Score	175	104.27	27.0122	101.00	185.00
14. Total _Scorefp = A_Scorefp+B_Score+C_Score	175	95.07	24.7585	93.00	175.00
15. Total_ScoreBC= B_Score+C_Score	175	44.60	22.9973	42.00	150.00

4.11.5 Graphical displays and discussion of categorised biographic variables

The graphs for age (Figure 4.2), gender (Figure 4.3), race (Figure 4.4), retail experience (Figure 4.5), and matric results (Figure 4.5) are shown for all the students that participated in this research study.

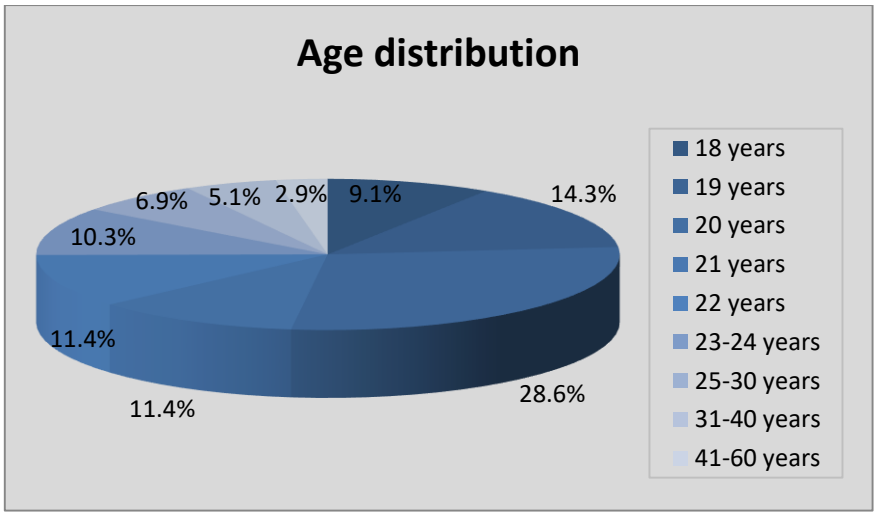

Figure 4.2: Pie chart with 3D visual effect for age distribution

A total of 28.6% of the respondents was 20 years old, and only 2.9% fell within the 41 – 60 age group. The average age of the respondents was 22.3 years (see Figure 4.2).

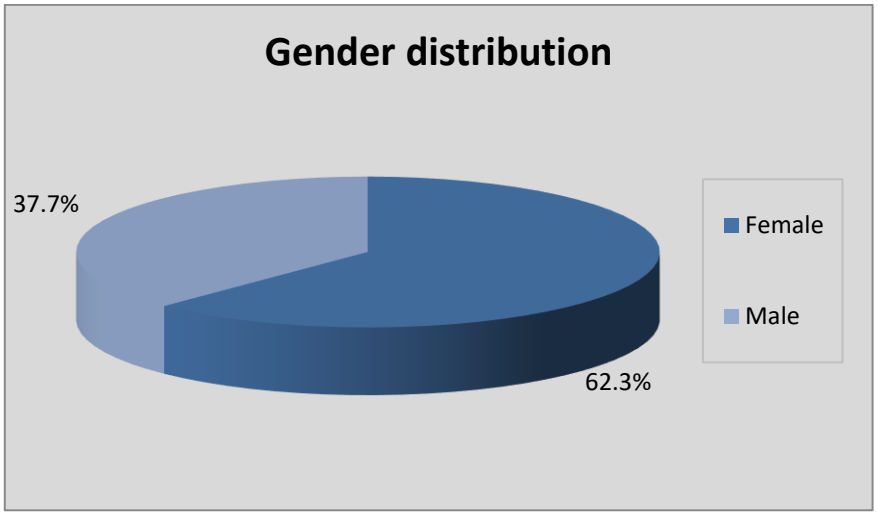

Figure 4.3: Pie chart with 3D visual effect for gender distribution

As graphically depicted in Figure 4.3 above, 62.3% of the respondents were female, and 37.7% was male.

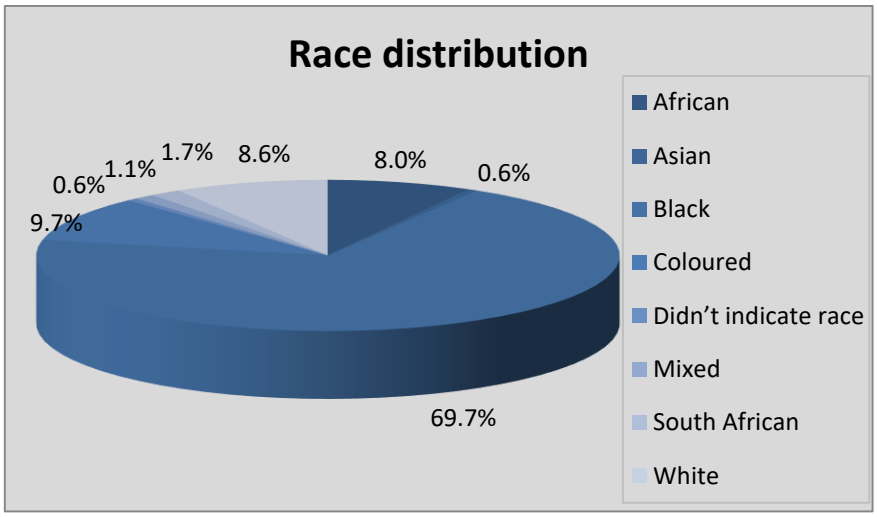

Figure 4.4: Pie chart with 3D visual effect for race distribution

Most of the respondents (69.7%) was black, followed by coloured (9.7%) and white (8.6%). Only 0.6% of the respondents did not indicate their race (see Figure 4.4).

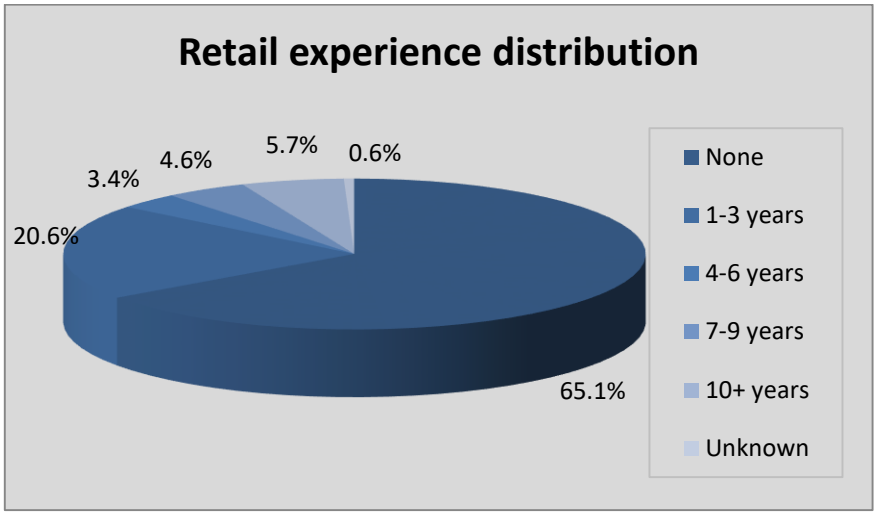

Figure 4.5: Pie chart with 3D visual effect for retail experience distribution

In total, 65.5% of the respondents had no retail experience, 20.6% had 1 – 3 years' experience, while 5.7% had ten or more years' experience. Only 0.6% of the respondents did not indicate their experience (see Figure 4.5).

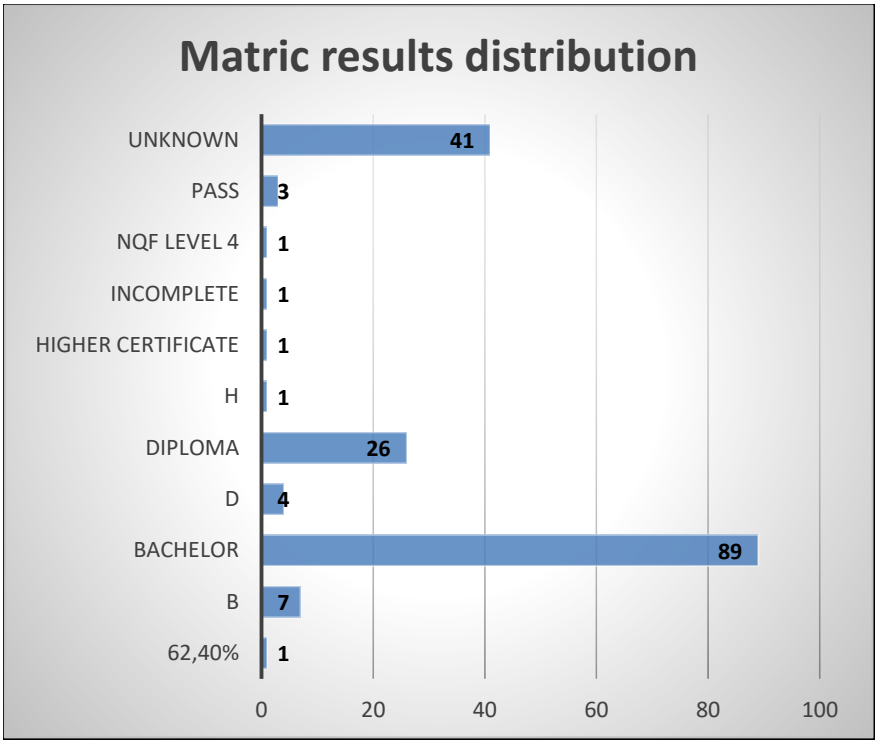

Figure 4.6: Bar chart for Matric results distribution

A total of 89 participants indicated that they had obtained access into the Bachelor's degree programme; 41 participants did not indicate their matric pass obtained and was indicated as "unknown" (see Figure 4.6). A further 26 respondents indicated that they passed matric and obtained access into a diploma qualification.

4.11.6 Graphical display and discussion of 40 statements in Part A of the study

Figure 4.7 shows the response distribution of the 40 creativity statements in Part A. It should be noted that A04, A07, and A16 were changed to have a positive influence on the total creativity score. A score was calculated for each of the statements, by weighting strongly disagree with the lowest weight and strongly agree with the highest weight. These scores were then sorted from the lowest to the highest (see Tables 4.7 and 4.8). Thus, the respondents agree more with the statements which have the highest score and disagree more with the statements with the lowest score.

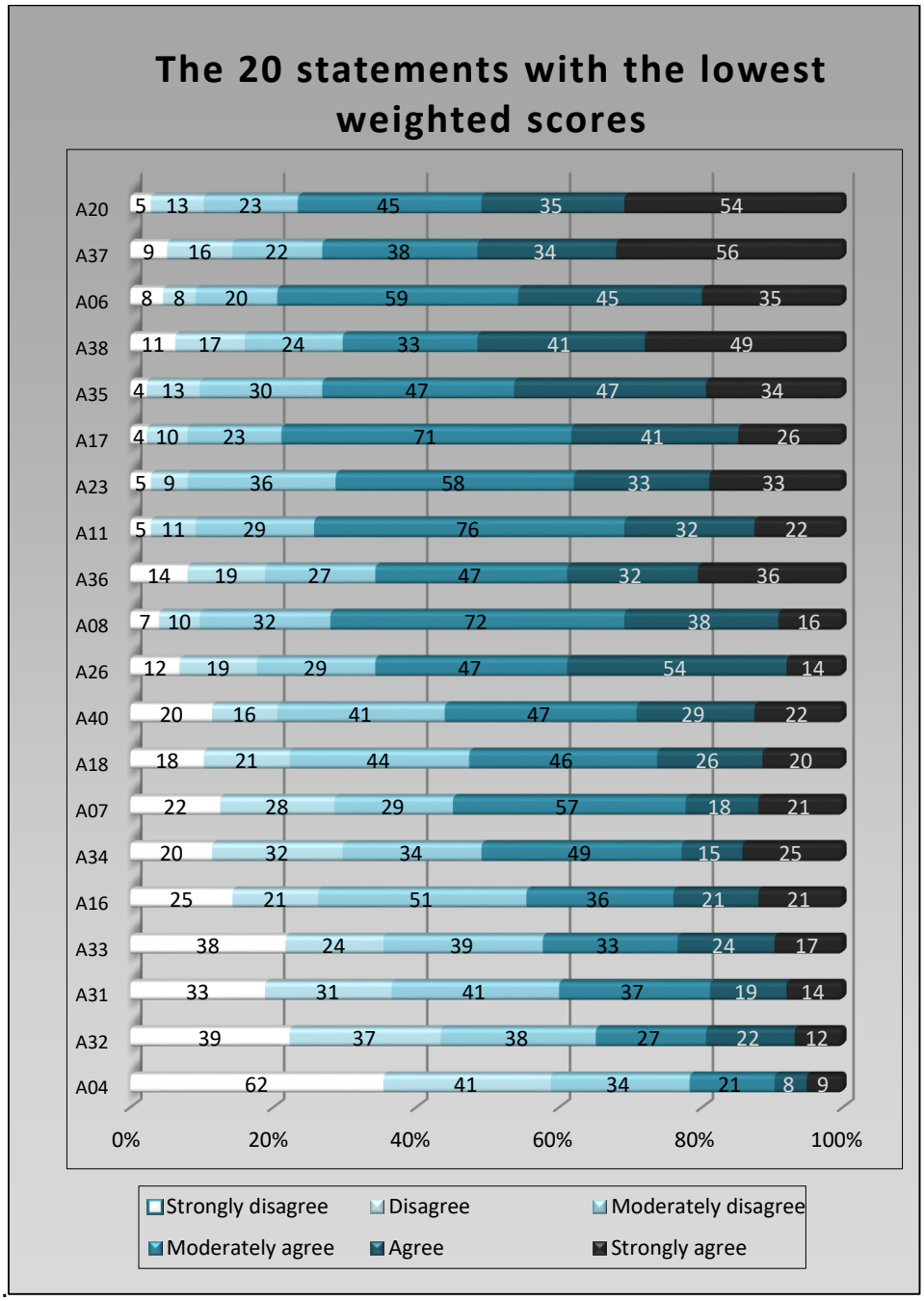

Figure 4.7: 100% stack bar showing the statements with the lowest weighted scores

According to Figure 4.7 above, respondent ratings are as follow:

- 35.4% of the respondents strongly disagree, 23.4% disagree, 19.4% moderately disagree, 12.0% moderately agree, 4.6% agree and 5.1% strongly agree with the statement “Creativity is not an important characteristic required to be a successful Retail Business Manager”.
- 22.3% of the respondents strongly disagree, 22.1% disagree, 21.7% moderately disagree, 15.4% moderately agree, 12.6% agree, and 6.9% strongly agree with the statement “Creative ideas come to you in your dreams”.
- 18.9% of the respondents strongly disagree, 17.7% disagree, 23.4% moderately disagree, 21.1% moderately agree, 10.9% agree and 8.0% strongly agree with the statement “You have specific daily time set out for creativity”.
- 21.7% of the respondents strongly disagree, 13.7% disagree, 22.3% moderately disagree, 18.9% moderately agree, 13.7% agree, and 9.7% strongly agree with the statement “You have your own place where you work on your creativity”.
- 14.3% of the respondents strongly disagree, 12.0% disagree, 29.1% moderately disagree, 20.6% moderately agree, 12.0% agree and 12.0% strongly agree with the statement “Evaluations at CPUT do not test your creative abilities”.
- 11.4% of the respondents strongly disagree, 18.3% disagree, 19.4% moderately disagree, 28.0% moderately agree, 8.6% agree and 14.3% strongly agree with the statement “You prefer to assist fellow students in being creative rather than be creative yourself”.
- 12.6% of the respondents strongly disagree, 16.0% disagree, 16.6% moderately disagree, 32.6% moderately agree, 10.3% agree and 12.0% strongly agree with the statement “Fellow students do not see you as a creative student”.
- 10.3% of the respondents strongly disagree, 12.0% disagree, 25.1% moderately disagree, 26.3% moderately agree, 14.9% agree and 11.4% strongly agree with the statement “You rather listen to ideas from others”.
- 11.4% of the respondents strongly disagree, 9.1% disagree, 23.4% moderately disagree, 26.9% moderately agree, 16.6% agree and 12.6% strongly agree with the statement “You are uncomfortable in taking time to solve crucial problems”.
- 6.9% of the respondents strongly disagree, 10.9% disagree, 16.6% moderately disagree, 26.9% moderately agree, 30.9% agree, and 8.0% strongly agree with the statement “You seldom come up with ideas for solving a problem”.
- 4.0% of the respondents strongly disagree, 5.7% disagree, 18.3% moderately disagree, 41.1% moderately agree, 21.7% agree, and 9.1% strongly agree with the statement “You are more creative than the average student”.

- 8.0% of the respondents strongly disagree, 10.9% disagree, 15.4% moderately disagree, 26.9% moderately agree, 18.3% agree and 20.6% strongly agree with the statement “You are not given enough opportunities to show your creativity in your study”.
- 2.9% of the respondents strongly disagree, 6.3% disagree, 16.6% moderately disagree, 43.4% moderately agree, 18.3% agree, and 12.6% strongly agree with the statement “You produce a number of creative ideas each week”.
- 2.9% of the respondents strongly disagree, 5.1% disagree, 20.6% moderately disagree, 33.1% moderately agree, 18.9% agree and 18.9% strongly agree with the statement “Fellow students see you as unpredictable in your thinking and interpretations of a situation”.
- 2.3% of the respondents strongly disagree, 5.7% disagree, 13.1% moderately disagree, 40.6% moderately agree, 23.4% agree and 14.9% strongly agree with the statement “You are normally the one in your study group that initiates new ideas or thoughts”.
- 2.3% of the respondents strongly disagree, 7.4% disagree, 17.1% moderately disagree, 26.9% moderately agree, 26.9% agree, and 19.4% strongly agree with the statement “You always solve problems with solutions that are familiar, and the outcome is known to you”.
- 6.3% of the respondents strongly disagree, 9.7% disagree, 13.7% moderately disagree, 18.9% moderately agree, 23.4% agree and 28.0% strongly agree with the statement “You prefer to study following a routine”.
- 4.6% of the respondents strongly disagree, 4.6% disagree, 11.4% moderately disagree, 33.7% moderately agree, 25.7% agree, and 20.0% strongly agree with the statement “You are by nature a creative student – creativeness comes naturally to you”.
- 5.1% of the respondents strongly disagree, 9.1% disagree, 12.6% moderately disagree, 21.7% moderately agree, 19.4% agree, and 32.0% strongly agree with the statement “You are more creative when you have tight deadlines to meet”.
- 2.9% of the respondents strongly disagree, 7.4% disagree, 13.1% moderately disagree, 25.7% moderately agree, 20.0% agree, and 30.9% strongly agree with the statement “You are most creative when working in a team”.

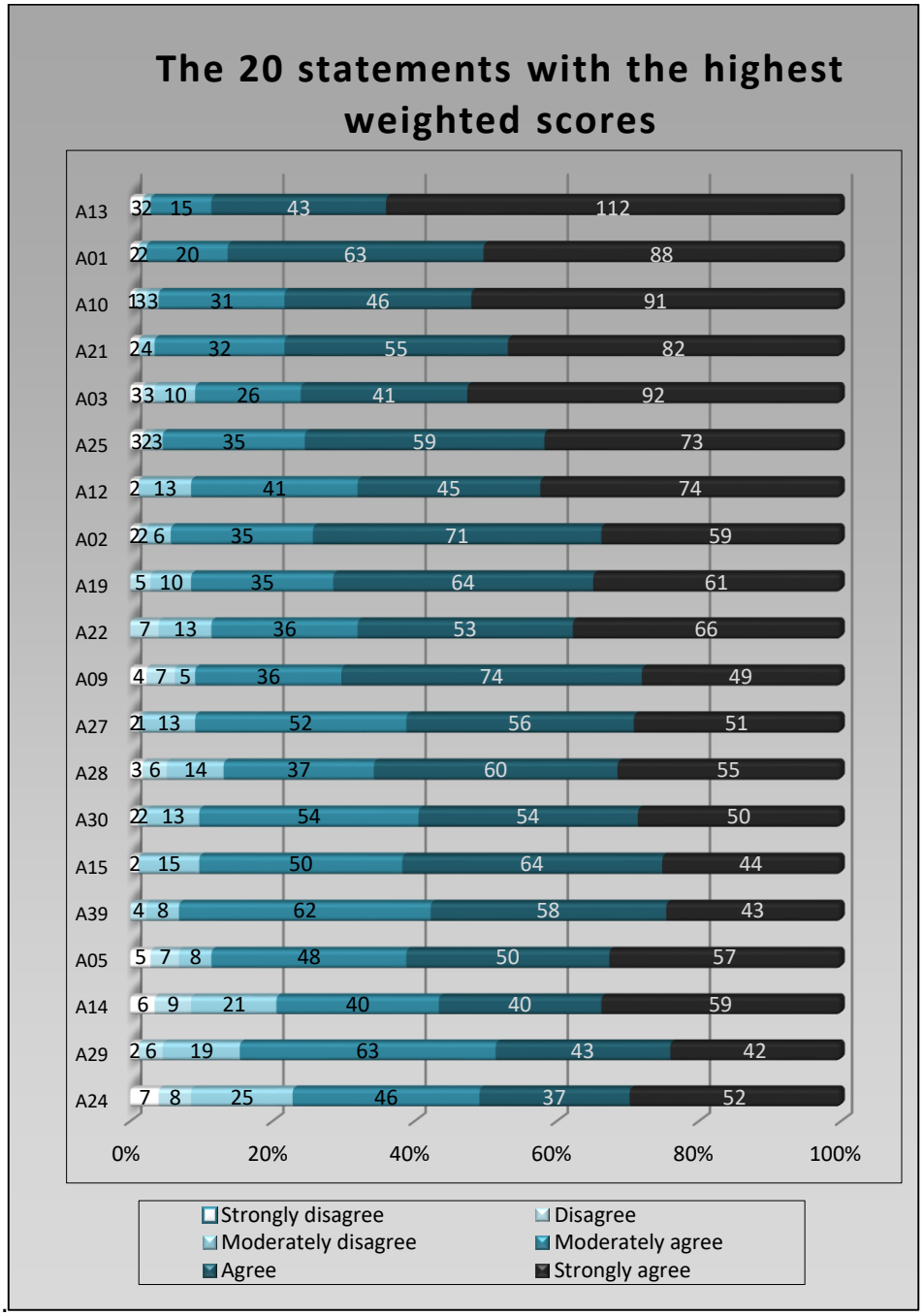

Figure 4.8: 100% stack bar showing the statements with the highest weighted scores

According to Figure 4.8 above, respondent ratings are as follow:

- 1.7% of the respondents strongly disagree, 1.1% moderately disagree, 8.6% moderately agree, 24.6% agree, and 64.0% strongly agree with the statement “You need to keep developing your skills on becoming more creative”.
- 1.1% of the respondents strongly disagree, 1.1% moderately disagree, 11.4% moderately agree, 36.0% agree, and 50.3% strongly agree with the statement “Creativity is very important to be successful”.

- 0.6% of the respondents strongly disagree, 1.7% disagree, 1.7% moderately disagree, 17.7% moderately agree, 26.3% agree and 52.0% strongly agree with the statement “You become more creative the further you progress with your studies”.
- 1.1% of the respondents strongly disagree, 2.3% moderately disagree, 18.3% moderately agree, 31.4% agree, and 46.9% strongly agree with the statement “You are excited by your own new ideas”.
- 1.7% of the respondents strongly disagree, 1.7% disagree, 5.7% moderately disagree, 14.9% moderately agree, 23.4% agree, and 52.6% strongly agree with the statement “You prefer to study in a creative environment”.
- 1.7% of the respondents strongly disagree, 1.1% disagree, 1.7% moderately disagree, 20.0% moderately agree, 33.7% agree, and 41.7% strongly agree with the statement “You enjoy challenging situations where you can prove your creativeness”.
- 1.1% of the respondents strongly disagree, 7.4% moderately disagree, 23.4% moderately agree, 25.7% agree, and 42.3% strongly agree with the statement “You are stimulated in an environment where you have the freedom to think for yourself”.
- 1.1% of the respondents strongly disagree, 1.1% disagree, 3.4% moderately disagree, 20.0% moderately agree, 40.6% agree, and 33.7% strongly agree with the statement “Creativity is an important component in the Retail Business Management curriculum at CPUT”.
- 2.9% of the respondents disagree, 5.7% moderately disagree, 20.0% moderately agree, 36.6% agree, and 34.9% strongly agree with the statement “You prefer to combine/alter existing ideas to generate something new”.
- 4.0% of the respondents disagree, 7.4% moderately disagree, 20.6% moderately agree, 30.3% agree and 37.7% strongly agree with the statement “You are outspoken and willing to present/defend your new ideas”.
- 2.3% of the respondents strongly disagree, 4.0% disagree, 2.9% moderately disagree, 20.6% moderately agree, 42.3% agree, and 28.0% strongly agree with the statement “You trust your judgement with your creative abilities”.
- 1.1% of the respondents strongly disagree, 0.6% disagree, 7.4% moderately disagree, 29.7% moderately agree, 32.0% agree, and 29.1% strongly agree with the statement “You always evaluate situations to find the most creative solutions”.
- 1.7% of the respondents strongly disagree, 3.4% disagree, 8.0% moderately disagree, 21.1% moderately agree, 34.3% agree, and 31.4% strongly agree with the statement “You are creative as a result of your self-discipline”.
- 1.1% of the respondents strongly disagree, 1.1% disagree, 7.4% moderately disagree, 30.9% moderately agree, 30.9% agree, and 28.6% strongly agree with the statement “You think outside the “box” and are happy finding solutions outside the “box”.

- 1.1% of the respondents strongly disagree, 8.6% moderately disagree, 28.6% moderately agree, 36.6% agree, and 25.1% strongly agree with the statement “You use many resources in evaluating effective solutions for a problem”.
- 2.3% of the respondents disagree, 4.6% moderately disagree, 35.4% moderately agree, 33.1% agree, and 24.6% strongly agree with the statement “You generate a number of possible solutions to a problem or a situation”.
- 2.9% of the respondents strongly disagree, 4.0% disagree, 4.6% moderately disagree, 27.4% moderately agree, 28.6% agree, and 32.6% strongly agree with the statement “Creativity is a critical requirement for being a successful Retail Business Management student”.
- 3.4% of the respondents strongly disagree, 5.1% disagree, 12.0% moderately disagree, 22.9% moderately agree, 22.9% agree and 33.7% strongly agree with the statement “You are most creative when you work alone”.
- 1.1% of the respondents strongly disagree, 3.4% disagree, 10.9% moderately disagree, 36.0% moderately agree, 24.6% agree, and 24.0% strongly agree with the statement “You always find different/un-usual ways of doing your daily activities”.
- 4.0% of the respondents strongly disagree, 4.6% disagree, 14.3% moderately disagree, 26.3% moderately agree, 21.1% agree, and 29.7% strongly agree with the statement “You have to concentrate hard to be creative”.

4.11.7 Graphical display and discussion of three rating variables in Part B of the study

Figure 4.9 shows the response distribution of the three average rating variables in Part B of the questionnaire.

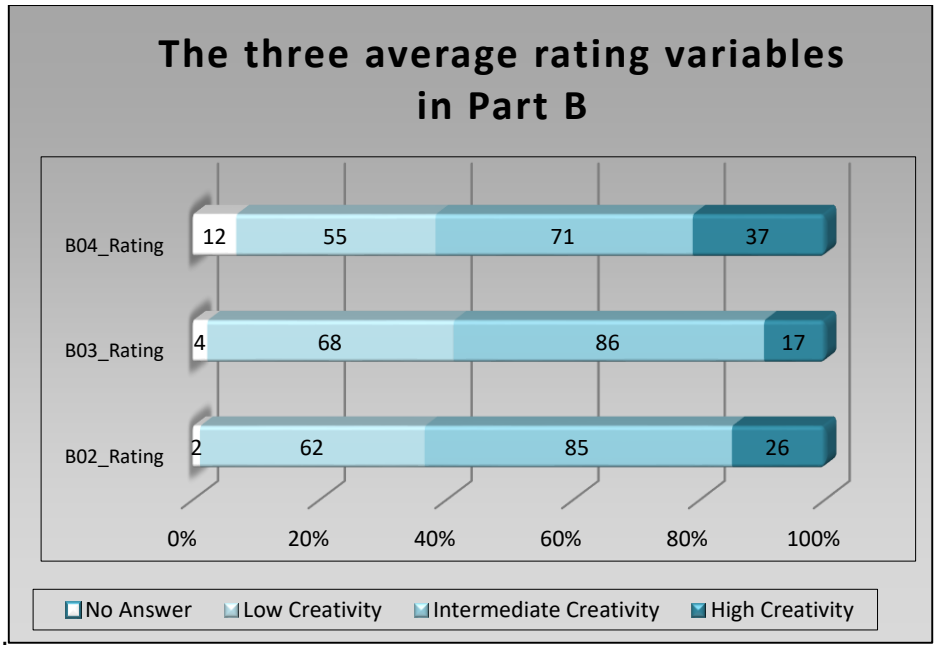

Figure 4.9: 100% stack bar showing the three average rating variables in Part B

According to Figure 4.9 above, it seems that the three rating variables in Part B have the same distribution.

4.12 INFERENTIAL STATISTICS

This section provides background information related to when the null hypothesis is rejected and when it is not rejected.

SAS computes a p-value (probability value) that measures statistical significance which is derived from the test values like the Chi-square. Results are regarded as significant if the p-values are smaller than 0.05 because this value presents an acceptable level on a 95% confidence interval ($p \leq 0.05$). The p-value is the probability of observing a sample value as extreme as, or more extreme than, the value observed, given that the null hypothesis is true. This area represents the probability of a Type 1 error that must be assumed if the null hypothesis is rejected (Cooper & Schindler, 2001).

The p-value is compared to the significance level (α), and on this basis, the null hypothesis is either rejected or not rejected. If the p-value is less than the significance level, the null hypothesis is rejected (if p-value < α, reject null). If the p-value is greater than or equal to the significance level, the null hypothesis is not rejected (if p-value ≥ α, do not reject null). Thus, with $\alpha = 0.05$, if the p-value is less than 0.05, the null hypothesis will be rejected. The p-value is determined by using the standard normal distribution. The small p-value represents the risk of rejecting the null hypothesis.

A difference has statistical significance if there is a good reason to believe the difference does not represent random sampling fluctuations only. Results will be regarded as significant if the p-values are smaller than 0.05 because this value is used as a cut-off point in most Behavioural Science research.

Although only the statistically significant differences are discussed in Sections 4.9.1 – 4.9.4 below, all the comparison statistics are available in Appendix F (refer to CD).

4.12.1 Test for an association between the survey groups and the categorical biographic variables

The Chi-square test for independence is used to test whether there is an association between the survey groups and the biographic variables. This test is done to show whether the different groups in the survey has the same distribution concerning the biographic variables. For age and retail experience, there are two types of scales, namely the categorical- and continuous scale. The continuous scale is used to indicate a rated weight of the variable (ANOVA) and is shown in Section 4.13. The categorical scale is used to identify items that are associated with mutual categories (see Section 4.14).

When using a Chi-square test, it is assumed that there has been random sampling; in other words, that 80 per cent of the cells have an expected frequency of greater than five, that no cell has an observed frequency of 0, and that a large sample is used, as small sample sizes lead to a small expected frequency which causes large Chi-square values. When these assumptions are violated, the results may lead to erroneous interpretation of the data.

Table 4.12: Statistically significant Chi-square tests

Question/Statement	Sample size	Chi-square	DF	Exact p-value
1. Gender	175	11.2657	3	0.0104*
2. Race	175	115.1118	21	<0.0001***
3. Matric results	134	38.4438	20	0.0078**

Table 4.12 above shows that the H_0 for gender is accepted, but for the race it is rejected while for matric results, the hypothesis of no difference is also accepted.

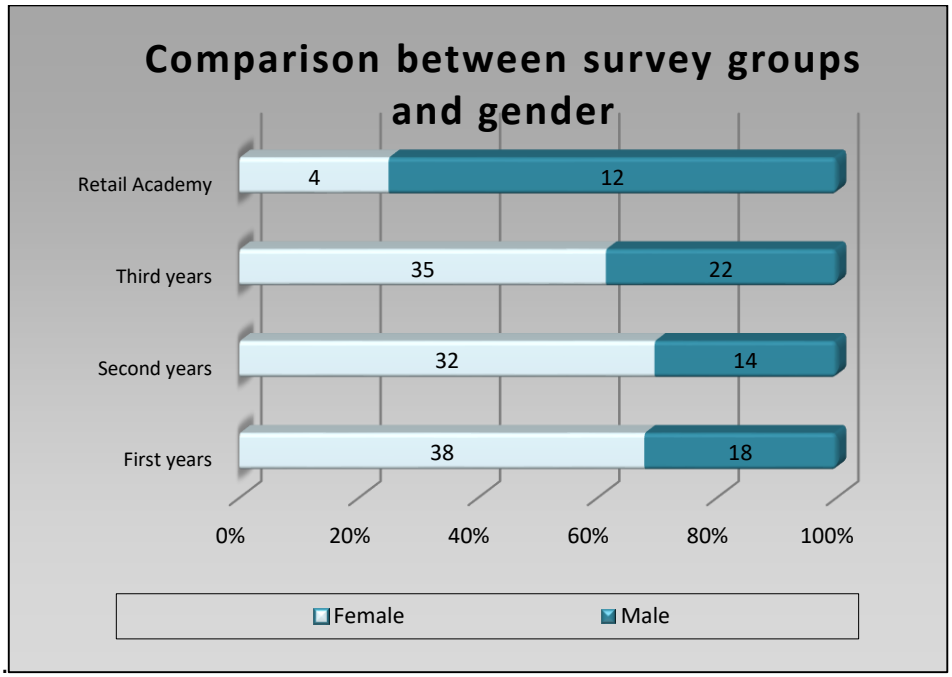

Figure 4.10: Comparison between survey groups and gender

Figure 4.10 above graphically depicts that there were statistically significantly more males than females in the Retail Academy group than in the other survey groups.

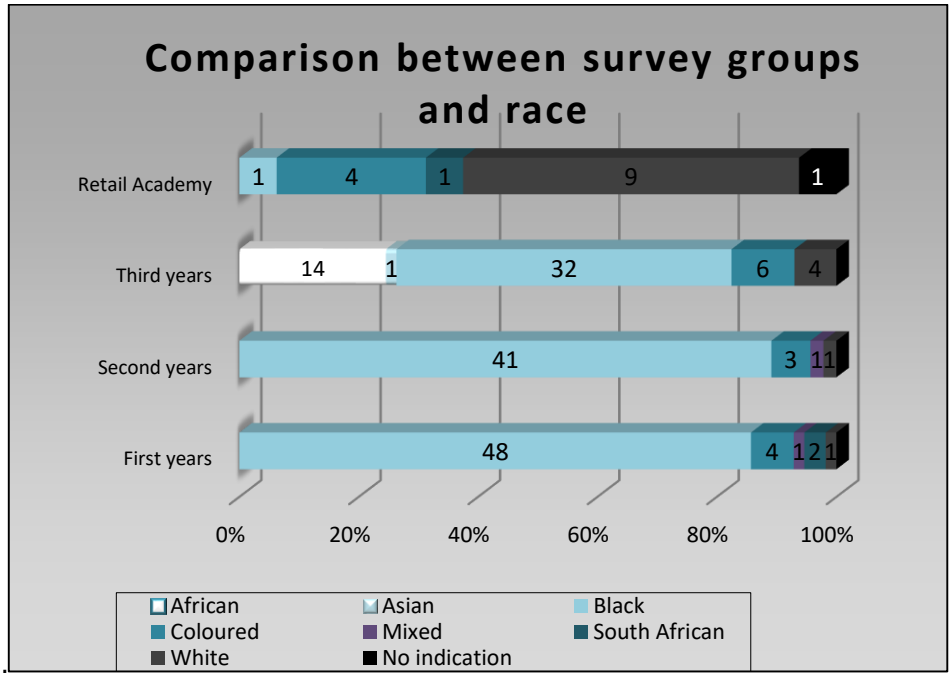

Figure 4.11: Comparison between survey groups and race

Based on Figure 4.11 above, there were statistically significantly more whites in the Retail Academy group than in the other first- to third year RBM survey groups.

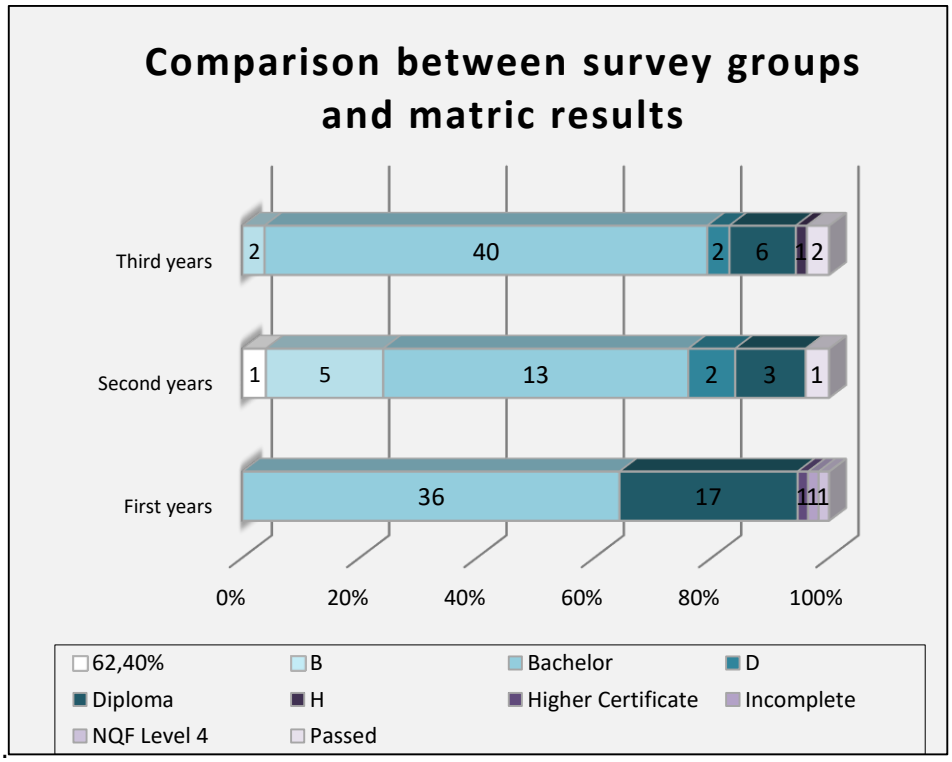

Figure 4.12: Comparison between survey groups and matric results

In Figure 4.12, it is evident that there were statistically significant more respondents from the first-year group who indicated that the level of their matric results is sufficient to give them access to study towards a Diploma when compared to the other survey groups. It should also

be noted that the Retail Academy group where not required to indicate their matric results as they have been working in the retail industry for a substantial number of years and their experience is adequate for entrance into tertiary education.

4.12.2 Differences in survey groups concerning the continuous biographic variables

The ANOVA was used to determine whether the survey groups differed concerning their age and retail experience. Thus, ANOVA tests whether there is a statistically significant difference between the mean age and the mean retail experience for the different survey groups (see Table 4.13). A Bonferroni test was then performed to determine where the differences lie, and a correction was made to the Alpha value to correct the Type I error.

Table 4.123: Statistically significant ANOVA values for continuous biographic variables

Question/ Statement	Group	Sample size	Group means	F-Value	DF	p-value
1. Age	First-years	56	19.8750	120.04	3	<0.0001***
	Second-years	46	20.2826			
	Third-years	57	22.1228			
	Retail Academy	16	37.1875			
2. Retail experience	First-years	56	0.2321	114.64	3	<0.0001***
	Second-years	46	0.7174			
	Third-years	56	1.0714			
	Retail Academy	16	13.2188			

According to the results shown in Table 4.13 above, there is a statistically significant difference between survey groups with respect to age and retail experience. In order to determine between which survey groups the difference lies, a Bonferroni test was performed. All the groups differed statistically significant from each other concerning age, except for the first-year students that did not differ statistically significantly from the second-year students. The Retail Academy group is statistically significant older than the third-, second-, and first-year groups. The third-year group is statistically significantly older than the second- and first-year groups. Note should be taken that the Levene's test for homogeneity of age variance is statistically significant; thus, the homogeneity of variance is violated, and consequently, there is a higher probability of falsely rejecting the null hypothesis. This is expected as the sample for the Retail Academy was drawn from a population with a more significant range in age than that of the third-, second-, and first-year groups.

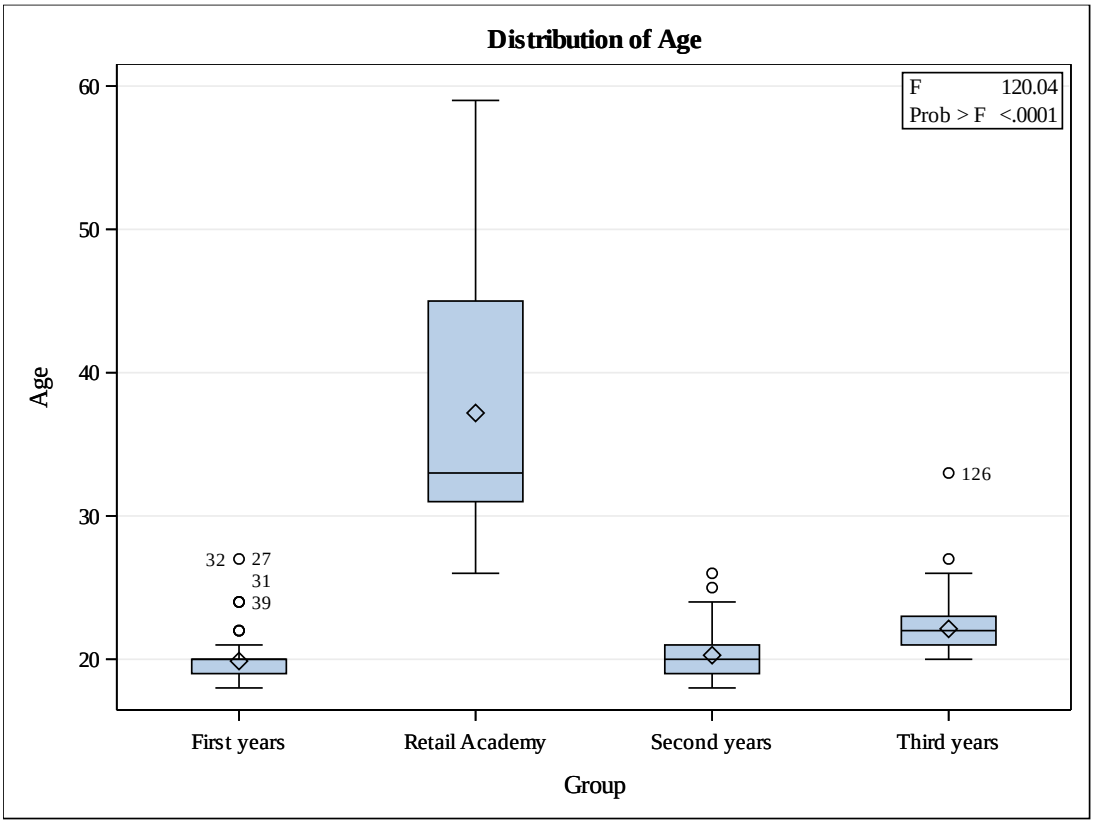

Figure 4.13: Box plots showing the age distribution for each survey group

The age distribution is acceptable as most of the full-time students who participated in the study commenced their studies immediately after obtaining their Grade 12 (matric) certificate. The Retail Academy students show a significantly higher average age due to their years of working experience (see Figure 4.13).

The Retail Academy group differs statistically significant from the third-, second-, and third-year groups with respect to retail experience. The third-, second-, and third-year groups do not differ statistically significantly from each other with respect to retail experience. Again, it should be noted that the Levene's test for homogeneity of retail experience variance is statistically significant; thus, the homogeneity of variance is violated, and consequently, there is a higher probability of falsely rejecting the null hypothesis. This is expected as the sample for the Retail Academy was drawn from a population with a more significant range in retail experience than that of the third-, second-, and first-year groups.

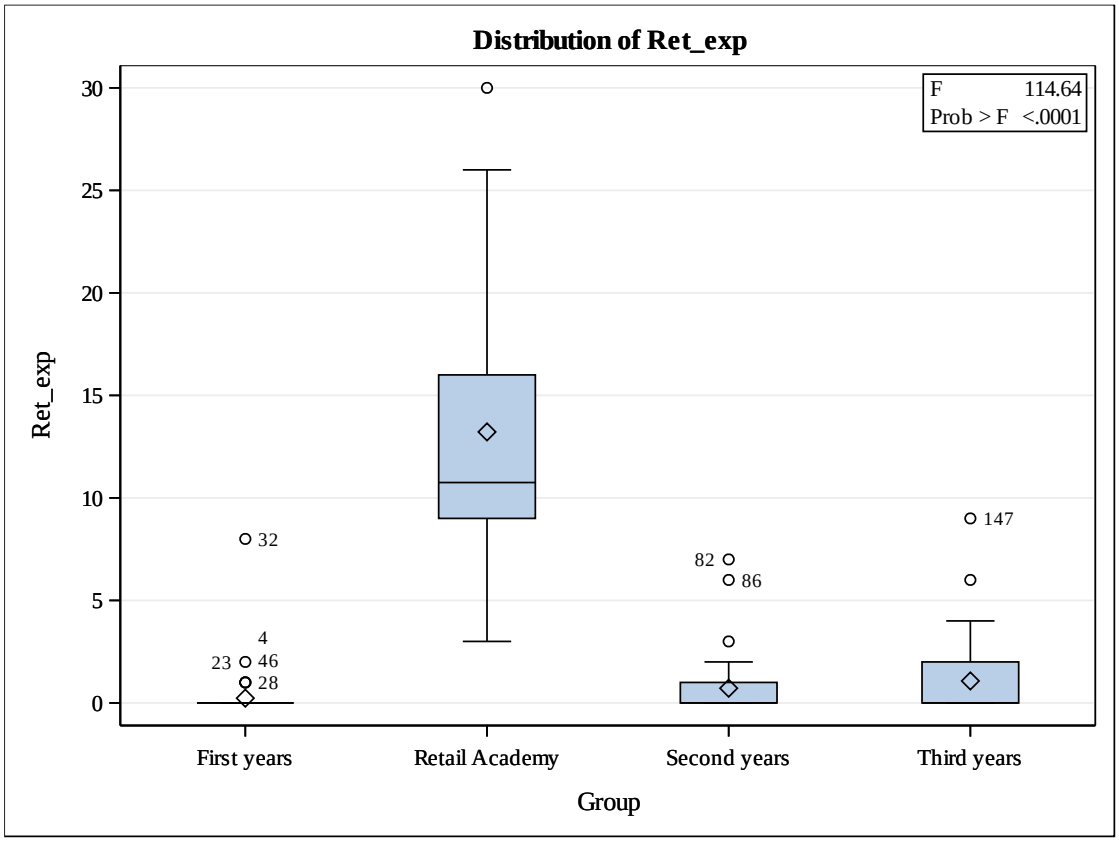

Figure 4.14: Box plots showing the retail experience distribution for each survey group

The distribution of the relevant retail experience (see Figure 4.14) is a result of the full-time students that struggle to obtain part-time employment in the retail industry. The third-year group had slightly more experience as they are required to do their in-service training in their third year. The retail academy participants are nominated to enrol for the qualification by their employers and their years of service is a strong recommendation for acceptance into the Retail Academy.

4.12.3 Differences in survey groups concerning the measuring instrument (creativity scores)

The ANOVA was used to determine whether the survey groups differed with respect to creativity scores. Thus, the ANOVA tests whether there is a statistically significant difference between the mean creativity scores for the different survey groups (see Table 4.14 overleaf). A Bonferroni test was then performed to determine where the differences lie, and a correction was made to the Alpha value to correct the Type I error.

Table 4.14: Statistically significant ANOVA values for scoring variables

Question/ Statement	Group	Sample Size	Group means	F-value	DF	p-value
1. B_Score	First-years	56	26.64	20.81	3	<0.0001***
	Second-years	46	33.83			
	Third-years	57	27.51			
	Retail Academy	16	64.50			
2. C_Score	First-years	56	9.66	5.57	3	0.0011**
	Second-years	46	12.87			
	Third-years	57	13.58			
	Retail Academy	16	15.63			
3. Total_Score	First-years	56	169.00	10.55	3	<0.0001***
	Second-years	46	184.13			
	Third-years	57	173.81			
	Retail Academy	16	205.63			
4. Total_Scoren	First-years	56	209.00	10.66	3	<0.0001***
	Second-years	46	224.11			
	Third-years	57	213.88			
	Retail Academy	16	245.88			
5. Total_Scorenn	First-years	56	120.14	13.19	3	<0.0001***
	Second-years	46	131.11			
	Third-years	57	123.98			
	Retail Academy	16	164.88			
6. Total_Scoref	First-years	56	138.91	13.83	3	<0.0001***
	Second-years	46	152.04			
	Third-years	57	143.89			
	Retail Academy	16	178.63			
7. Total_Scorefn	First-years	56	95.59	16.39	3	<0.0001***
	Second-years	46	107.70			
	Third-years	57	99.54			
	Retail Academy	16	141.62			
8. Total_Scorefp	First-years	56	86.27	17.00	3	<0.0001***
	Second-years	46	98.24			
	Third-years	57	91.49			
	Retail Academy	16	129.50			
9. Total_ScoreBC	First-years	56	36.30	21.21	3	<0.0001***
	Second-years	46	46.70			
	Third-years	57	41.09			
	Retail Academy	16	80.13			

There are no statistically significant differences between the survey groups with respect to the total scores of Part A of the study. Thus, the total scores in Part A do not differ between the survey groups.

There are statistically significant differences between survey groups concerning the total score of creativity in Part B, Part C, and the different total combinations of the total scores in Parts A, B, and C. In order to determine between which survey groups the difference lies, a Bonferroni test was performed. The results for these statistically significant differences are as follows:

- Total score of creativity in Part B – B_Score:
    - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups.

- The null hypothesis of equal means could not be rejected between the first-year-, second-year-, and third-year survey groups. Thus, their means did not differ statistically significantly from each other.

- Total score of creativity in Part C – C_Score:
  - The Retail Academy and the third-year group means are statistically significantly higher than that of the first-year group.
  - The null hypothesis of equal means for the comparisons between the Retail Academy group and second-year group, Retail Academy group and third-year group, and second-year- and third-year group could not be rejected. Thus, their means did not differ statistically significantly.
- Original total score of creativity (A_Score+B_Score+C_Score) (as per survey):
  - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups, and the second-year group mean statistically significantly higher than that of the first-year group.
  - The null hypothesis of equal means for the comparisons between the third-year group and second-year group means, and between the third-year- and first-year group means could not be rejected. Thus, their means did not differ statistically significantly from each other.
- Total score of creativity (A_Scoren+B_Score+C_Score):
  - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups, and the second-year group mean statistically significantly higher than that of the first-year group.
  - The null hypothesis of equal means for the comparisons between the third-year- and second-year group means, and between the third-year- and first-year group means could not be rejected. Thus, their means did not differ statistically significantly from each other.
- Total score of creativity (A_Scorenn+B_Score+C_Score):
  - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups.
  - The null hypothesis of equal means for the comparisons between first-year- and second-year groups, first- and third-year groups, and between second- and third-year groups could not be rejected. Thus, their means did not differ statistically significantly from each other.
- Total score of creativity (A_Scoref+B_Score+C_Score):
  - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups and the second-year group mean is statistically significantly higher than that of the first-year group.
  - The null hypothesis of equal means for the comparisons between the third-year- and second-year group means, and between the third-year- and first-year

group means could not be rejected. Thus, their means did not differ statistically significantly from each other.

- Total score of creativity (A_Scorefn+B_Score+C_Score):
    - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups.
    - The null hypothesis of equal means for the comparisons between first-year- and second-year groups, first- and third-year groups, and between second- and third-year groups could not be rejected. Thus, their means did not differ statistically significantly from each other.
- Total score of creativity (A_Scorefp+B_Score+C_Score):
    - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups and the second-year group mean is statistically significantly higher than that of the first-year group.
    - The null hypothesis of equal means for the comparisons between the third-year and second-year group means, and between the third-year- and first-year group means could not be rejected. Thus, their means did not differ statistically significantly from each other.
- Total score of creativity (B_Score+C_Score):
    - The Retail Academy group mean is statistically significantly higher than that of the other three survey groups.
    - The null hypothesis of equal means for the comparisons between first-year- and second-year groups, first- and third-year groups; and between second- and third-year groups could not be rejected. Thus, their means did not differ statistically significantly from each other.

Note should be taken that the Levene's test for homogeneity of the all the above-mentioned score variables have statistically significant different variances in the groups and thus, the homogeneity of variance is violated and consequently, there is a greater probability of falsely rejecting the null hypothesis. As a result, a non-parametric Kruskal-Wallis test and subsequently, Dwass, Steel, Critchlow-Fligner Method was applied to do the pairwise multiple comparisons. The results are reflected in Appendix F (refer to CD).

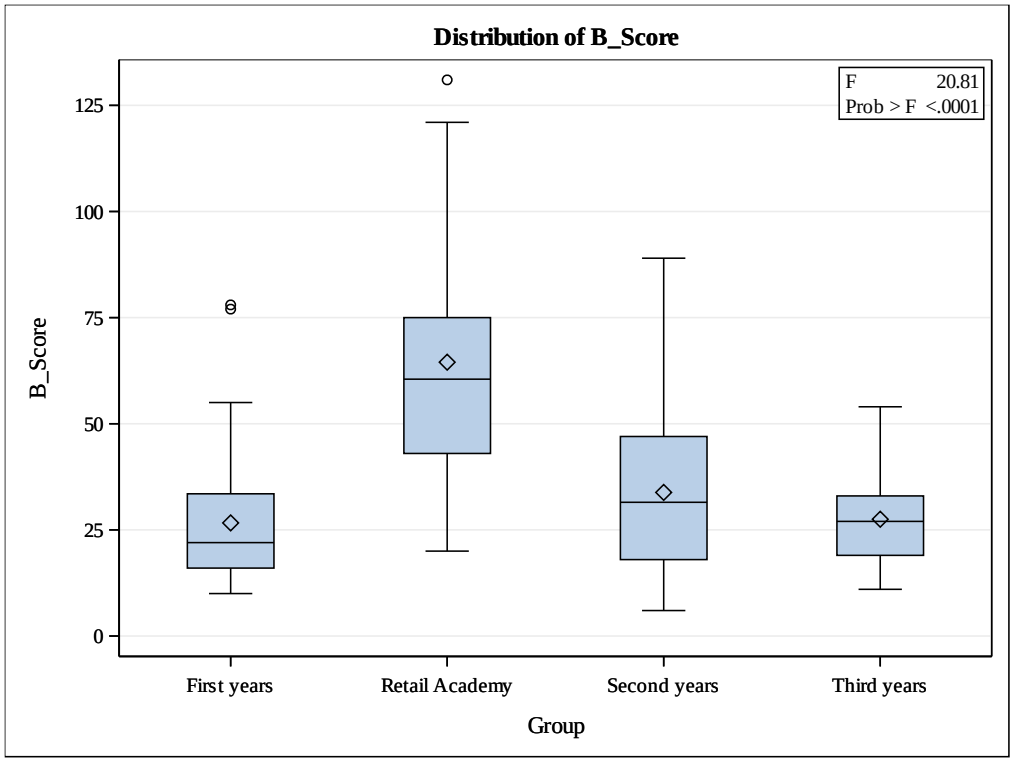

Figure 4.15: Box plots showing the B_Score distribution for each survey group

Part B of the survey focused on verifying the creativity levels of the students, through open-ended non-retail related questions, against the self-perception questions posed in Part A. The retail academy participants scored higher while the third-year students scored the lowest of all the groups (see Figure 4.15).

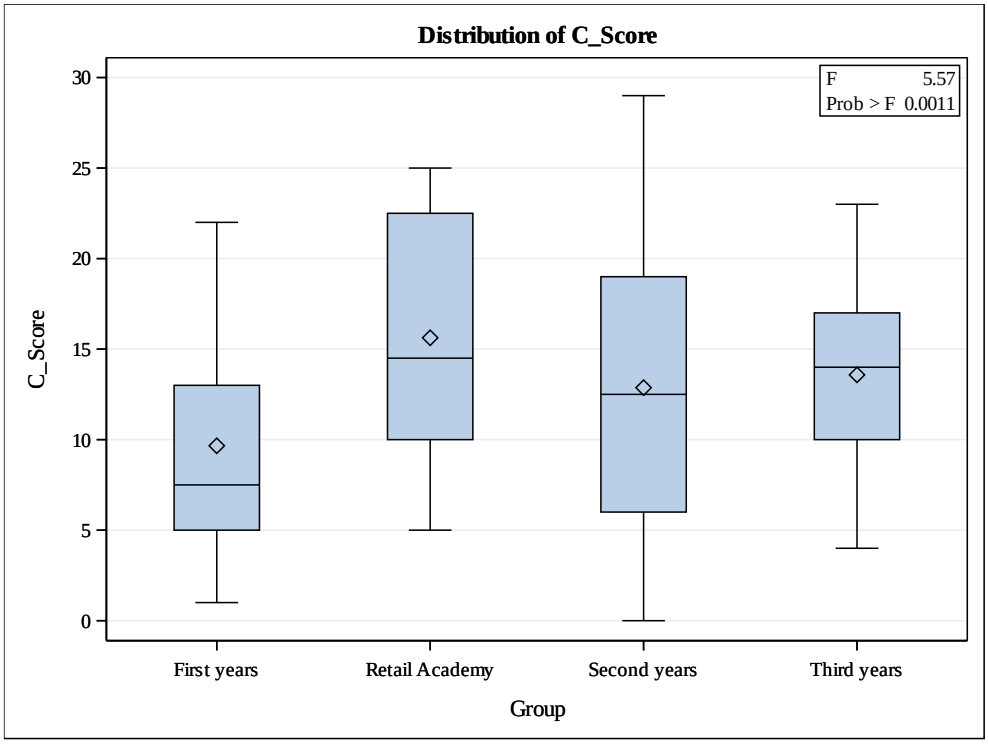

Figure 4.16: Box plots showing the C_Score distribution for each survey group

Part C of the survey focused on assessing higher-level creativity (secondary creativity) by expecting students to use their superior creativity to create, combine, and produce something with the additional materials provided. The Retail Academy students demonstrated higher levels of creativity compared to their full-time counterparts (see Figure 4.16 above). The first-year students scored the lowest in this part of the survey.

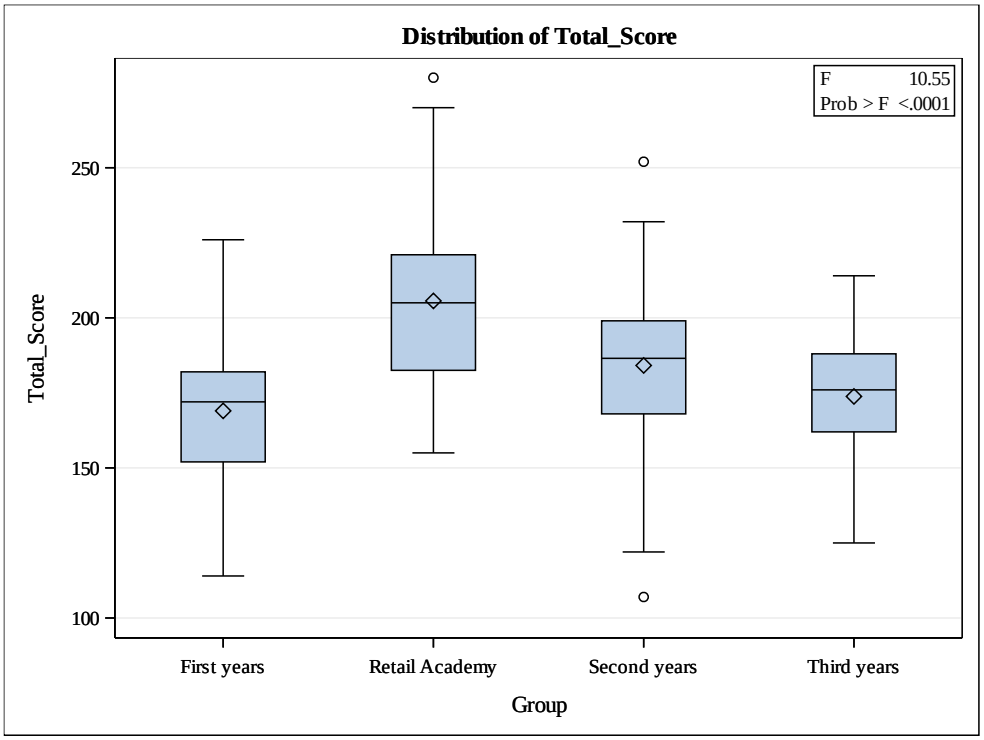

Figure 4.17: Box plots showing the Total_Score distribution for each survey group

The total score indicates the levels of student creativity against the expected creativity levels of the retail industry, represented by the Retail Academy students. It can be observed that all the full-time groups scored lower than the Retail Academy students (see Figure 4.17). This observation is a result of the lack in the development of the creative ability, understanding, application, as well as working experience of full-time ND: RBM students within the WRS when compared against the vast working experience and exposure of the Retail Academy students who are better equipped to deal with the creative demands that the WRS poses.

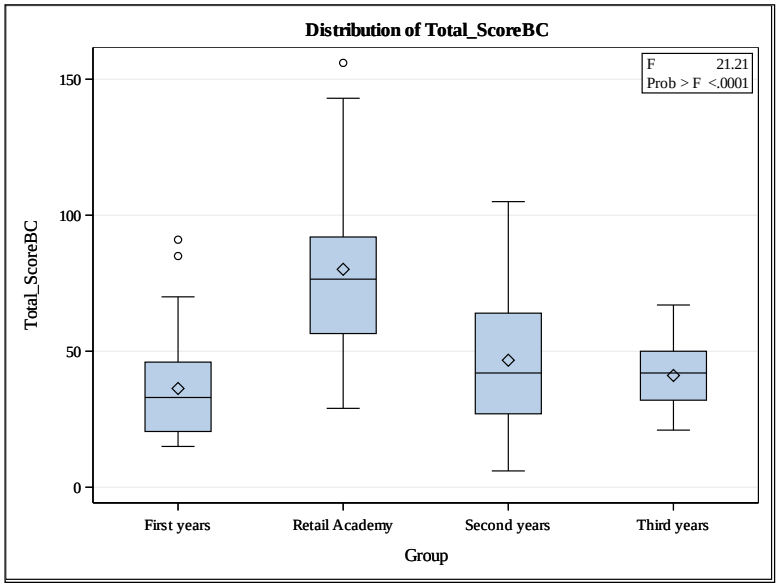

Figure 4.18: Box plots showing the Total_Score of B and C distribution for each survey group

Part B and Part C of the survey validate Part A of the survey. Results indicate higher-order creativity (see Figure 4.18). The full-time students had very similar creativity levels but scored lower than the Retail Academy participants.

The following conclusions can be drawn:

- Full-time students have very similar creativity levels, indicating that there is no development of creativity within the qualification otherwise, there would have been an improvement (growth) in the creativity levels of students from their first- to third year.
- The full-time ND: RBM students scored lower than their Retail Academy counterparts, indicating that the full-time students, although slightly creative, do not meet the required creativity levels required by the WRS.

All the above statistics are represented in Appendix F (refer to CD).

4.12.4 Non-parametric tests

Results for the Kruskal-Wallis test mostly provided the same results as the ANOVA. This section discusses where different results were achieved with respect to the multiple comparisons performed:

- For the age variable, this test did not find a statistically significant difference between the first- and second-years.
- Regarding retail experience, the second- and third-years did not differ.
- For the variable A_Score, the Retail Academy group scored statistically significantly higher than the second-year group.
- For the variable A_Scoren, the Retail Academy group scored statistically significantly higher than the second-year group.

- For the variable A_Scorenn, the results are the same.
- For the variable A_Scoref, the results are the same.
- For the variable A_Scorefn, the results are the same.
- For the variable A_Scorefp, the results are the same.
- For the variable B_Score, the results are the same.
- For the variable C_Score, the results are the same.
- Regarding Total_Score, the Retail Academy group did not score statistically significantly higher than the second-years.
- Regarding Total_Scoren, the Retail Academy group did not score statistically significantly higher than the second-years.
- For the variable Total_Scorenn, the results are the same.
- For the variable Total_Scoref, the results are the same.
- For the variable Total_Scorefn, the results are the same.
- For the variable Total_Scorefp, the results are the same.
- For the variable Total_ScoreBC, the results are the same.

Thus, the results of the ANOVA can be confirmed where the parametric- and non-parametric tests yield the same results. It seems that the non-parametric test yielded more conservative results and thus, where statistically significant differences were achieved in the multiple comparisons through the ANOVA and subsequently, the Bonferroni test and Kruskal-Wallis test. As a result, the Dwass-Steel-Critchlow-Fligner method could not reject the null hypothesis. Consequently, care should be taken with the conclusion made.

4.13 DISCUSSIONS AND CONCLUSIONS

This chapter focused on analysing collected data to provide results and provide relevant discussions in order to address the relevant questions and attain appropriate research objectives. Before any data were analysed, the validity and reliability of the data were first addressed as they form the foundation for the presentation of results. Furthermore, Cronbach's Alpha values were used to determine the reliability of the gleaned data pertaining to Likert scale questions.

In order to adequately address the main research objective of this study, inferential statistics were used to perform cross-tabulations for the group- and categorical biographic variables, ANOVA and Bonferroni tests, as well as Kruskal-Wallis tests.

Stemming from the results obtained through the survey with respect to the biographic variables in the questionnaire, the following analogies can be drawn:

- It seems that the age distribution of the sample corresponds with that of the population. The age distribution of students in their first- to third year of study normally vary between ages 18 and 24 years. The Retail Academy group were all employed by

various businesses throughout the WRS resulting in the age difference between the Retail Academy group and their full-time counterparts.

- Similar results were found regarding the retail experience of students – first- to third-year students had little or no retail experience compared to the Retail Academy group as the latter have been working in the retail environment for a more extended period.
- More females than males completed the survey for the first-, second-, and third-year groups. However, there are statistically significantly more males than females in the Retail Academy group.
- The race distribution seems to include predominantly Black respondents. This should also be compared to the population in order to determine whether race is representative in this sample. The Retail Academy group, however, had more Whites than the three RBM student groups.
- With respect to the Matric results, it is difficult to determine whether it has an impact on this study as it seemed that most respondents misinterpreted the question.

With respect to the measuring variables (creativity scoring) in the questionnaire, the following analogies can be drawn:

- The statements in Part A of the study represent multiple constructs. These constructs seem to represent positive creativity enforcements, negative creativity enforcements, definitions or descriptions related to retail business, environments where people are creative, and creative psyche. In order for this measuring instrument to be a valid and reliable measurement of creativity, the information should be more refined.
- For the scoring in Part B of the study, acceptable reliability is achieved when the B05_Score is omitted from the Cronbach Alpha test. This could be due to creativity measuring objects in the first four items and the B05_score representing measurements where the creativity levels of the participants were measured through word connectivity, thus enabling the researcher to score the different levels of creativity.
- For the scoring of Part C of the study, acceptable reliability is achieved when the C04_Score is omitted from the Cronbach Alpha test. The final section of Part C contained additional materials that could be used to illustrate higher levels of creativity and was thus scored out of a total of 20 compared to the other sections that were scored out of 6 or 7.
- In addressing the research question regarding whether RBM students are creative, more than 50 per cent of the respondents agree to strongly agree with the following statements in Part A:

- You are most creative when working in a team
- You need to keep developing your skills on becoming more creative
- Creativity is very important to be successful
- You become more creative the further you progress with your studies
- You are excited by your own new ideas
- You prefer to study in a creative environment
- You enjoy challenging situations where you can prove your creativeness
- You are stimulated in an environment where you have the freedom to think for yourself
- Creativity is an important component in the Retail Business Management curriculum at CPUT
- You prefer to combine/alter existing ideas to generate something new
- You are outspoken and willing to present/defend your new ideas
- You trust your judgement with your creative abilities
- You always evaluate situations to find the most creative solutions
- You are creative as a result of your self-discipline
- You think outside the “box” and are happy finding solutions outside the “box”
- You use many resources in evaluating effective solutions for a problem
- You generate a number of possible solutions to a problem or a situation
- Creativity is a critical requirement for being a successful Retail Business Management student
- You are most creative when you work alone
- You always find different/unusual ways of doing your daily activities
- You have to concentrate hard to be creative

- In addressing the research question regarding how the creativity levels of students compare with the creativity levels of the Retail Academy (a representation of the retail industry) and whether the creativity levels of the students increase from their first- to fourth year of study, the total creativity scores are compared for the four survey groups and the results are as follow:
  - The respondents from the different survey groups do not differ with respect to the total scores in Part A of the study.
  - The Retail Academy group scored part B of the study, statistically significantly higher than the first-, second- and third-year groups; however, the student groups do not differ in this regard.
  - The Retail Academy group scored statistically significant higher in Part C of the study than the first- and third-year groups, but not higher than the second-year group. There is also no statistically significant difference in the scoring between student groups.

- In terms of the original total score calculated for creativity (Part A, B, and C added together), the Retail Academy scored statistically significantly higher than the first- and third-year groups. The second-years scored statistically significantly higher than the first-years.
- In terms of the total score calculated for creativity after 1 was added (Part A, B, and C added together), the Retail Academy scored statistically significantly higher than the first- and third-year groups. The second-years scored statistically significantly higher than the first-years.
- In terms of the total score calculated for creativity after 1 was added (positive enforcement are added together and the negative enforcement are subtracted in Part A and added to Part B and C), the Retail Academy scored statistically significantly higher than the first-, second-, and third-year groups. There is also no statistically significant difference in the scoring between student groups.
- In terms of the total score calculated for creativity after 1 was added (only items loaded on a factor are added in Part A and added to Part B and C), the Retail Academy scored statistically significantly higher than the first-, second-, and third-year groups. The second-years scored statistically significantly higher than the first-years.
- In terms of the total score calculated for creativity after 1 was added (only items loaded on a factor with positive enforcement being added together and the negative enforcement being subtracted in Part A and added to Part B and C), the Retail Academy scored statistically significantly higher than the first-, second-, and third-year groups. There is also no statistically significant difference in the scoring between student groups.
- In terms of the total score calculated for creativity after 1 was added (the items of the only reliable construct are added in Part A (positive enforcement factor 1 and added to Part B and C), the Retail Academy scored statistically significantly higher than the first-, second-, and third-year groups. The second-years scored statistically significantly higher than the first-years.
- In terms of the total score calculated for creativity (Part B and C added together), the Retail Academy scored statistically significantly higher than the first-, second-, and third-year groups. There is also no statistically significant difference in the scoring between student groups.

Stemming from the above, the inference could be made that the Retail Academy is scoring overall higher with respect to their creativity scoring than the ND: RBM student groups. There is only one piece of evidence that shows that in some iterations of calculating the total score, the second-years scored higher than the first-year group. Thus, there is no evidence when

using these creativity scorings that the creativity levels of students increased from their first- to third year.

The above results and conclusions were presented by the author at the 2019 International Conference on Business and Management Dynamics (ICBMD) held in Swakopmund, Namibia (2 – 3 September 2019) (refer to Appendices C.1 – C.3), and as a result, an article titled “The evaluation of retail business management student creativity levels at a selected university in the Western Cape” was published in the Department of Higher Education and Training (DHET) accredited conference proceedings which has been accepted for inclusion into the Web of Science Conference Proceedings Citation Index (see Appendices C.2 and C.3).

Chapter 5 revisits the identified research problem, relevant research questions, and research objectives, and specific conclusions and recommendations are made.

CHAPTER 5
KEY FINDINGS, RECOMMENDATIONS AND LIMITATIONS

5.1 INTRODUCTION

This chapter revisits the research problem (see Section 1.3), research questions and research objectives (see Section 1.4). Empirical research (survey research) was performed to assist in the answering of the research sub-questions and attainment of the research objectives. Stemming from the literature review, the following concepts were conceptualised:

- An overview of creativity (see Section 2.2)
- Creativity in education (see Section 2.3)
- Evaluation of creativity in education (see Section 2.4)
- Creativity in Retail Business Management (see Section 2.5)

An in-depth literature review assisted in the construction of a survey (see Appendix B1) that were used to glean data from ND: RBM students enrolled at the CPUT. A combination of purposive sampling and convenience sampling (see Section 1.5.4) was used as all the ND: RBM students were invited to participate in the study. Respondents were subjected to strict delineation criteria (see Section 3.2).

Relevant data gleaned from respondents were primarily analysed using both descriptive- and inferential statistics. The results regarding the statistics are presented and discussed in Chapter 4 of this research study.

Furthermore, for the remainder of this chapter, conclusions are drawn, recommendations are made, limitations of the research study are discussed, and suggestions for further studies are provided.

The analytical process followed thus far, is graphically depicted in Figure 5.1 (overleaf), which places the chapters in context with the overall research objectives and indicates the relative positioning of this chapter.

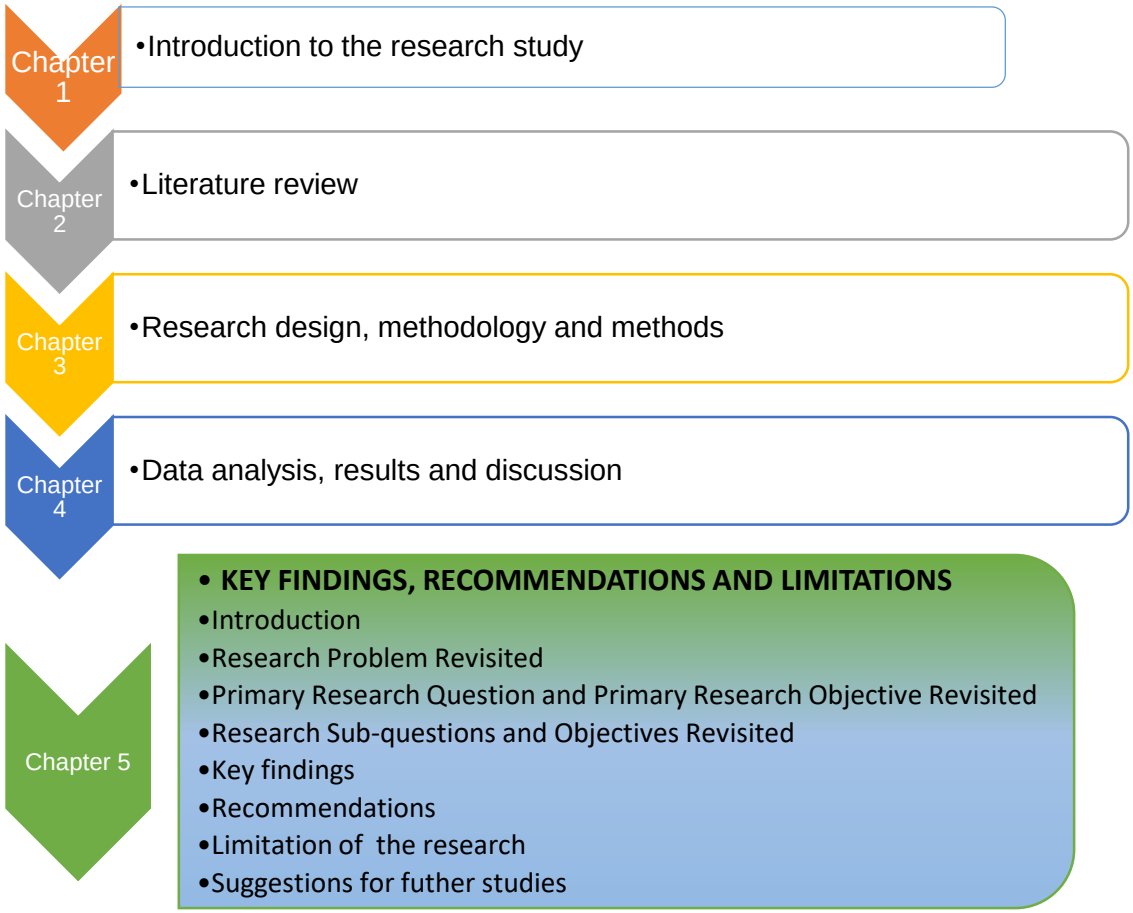

Figure 5.1: Detailed layout of Chapter 5: Key findings, recommendations and limitations

5.2 RESEARCH PROBLEM REVISITED

Against the background of the research problem (see Section 1.2), the research problem reads as follows:

Creativity is a crucial skill required to succeed in the competitive retail business industry; however, it is unclear to what extent students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT.

5.3 PRIMARY RESEARCH QUESTION AND PRIMARY RESEARCH OBJECTIVE REVISITED

The study set out to investigate the research problem that was identified in the description of the SAQA registered qualification for RBM where one of the key outcomes for the qualification is to "Identify problems and creatively make responsible decisions to solve problems so as to benefit the retail business and community as a whole" (see Appendix A). One of the critical outcomes for the qualification is for students not only to be able to recognise problems, but to use their creativity to develop suitable solutions to solve the complex and often unique business problems they face within the WRS, community, and South Africa as a whole.

In order to address the identified research problem, the following primary research question was asked (see Section 1.3.1):

To what extent do students meet the specified critical outcome of creativity for the RBM qualification at the CPUT?

Taking the primary research question above into account, the primary research objective pertaining to this research study is (see Section 1.3.1):

To determine the extent to which students meet the specified critical outcome of creativity within the ND: RBM qualification offered at the CPUT.

5.4 RESEARCH SUB-QUESTIONS AND OBJECTIVES REVISITED

For this research study, five investigative research questions were developed, together with five secondary research objectives. Each one of these investigative research questions and their respective secondary research objectives are revisited below:

- To what extent do the creativity levels of RBM students meet the required creativity levels of the retail industry?
- To what extent are the creativity skills of RBM students developed over the three-year duration of the qualification?
- To what extent do gender, age, and ethnicity have an impact on the creativity levels of RBM students?
- How does creativity influence students' choice of study?

The key research objectives, as defined in Chapter 1, Section 1.4.2, are as follow:

- To determine the extent to which the creativity levels of RBM students meet the required creativity levels of the retail industry.
- To determine the extent to which the creativity skills of RBM students are developed over the three-year duration of the qualification.

- To determine the extent to which gender, age, and ethnicity have an impact on the creativity levels of RBM students.
- To determine if there is a correlation between creativity levels and students selecting RBM as the first choice of study.

5.5 KEY FINDINGS

In this research study, the following analogies were drawn based on the four research sub-questions asked:

5.5.1 To what extent do students meet the specified critical outcome of creativity for the RBM qualification at the CPUT?

This question was answered through the identification of a creativity profile of students studying towards the ND: RBM at the CPUT. The sampling population comprised of all 2018 full-time students (n=525) registered for the ND: RBM at the CPUT. Students participated in the study out of free will (voluntary participation) and could withdraw from the study at any time without any consequences. Their results were measured against the participants from the Retail Academy, who were identified as a suitable WRS sample.

To answer the main research question, the data obtained from Part A, Part B, and Part C of the questionnaire (see Appendix B1) were analysed.

Part A

This part of the questionnaire consisted of 40 statements related to aspects of creativity and participants rated themselves on a six-point Likert scale ranging from strongly agree to strongly disagree.

- The average score per person for the first-year students outscored that of the Retail Academy by 5.7%. The average score for the first-year students per person was 132.6 against the 125.4 of the Retail Academy.
- The second-year students scored, on average, per person, 9.8% better than the Retail Academy students. Second-year students scored an average of 137.7 per person and the Retail Academy 125.4 per person.
- The third-year students scored on average 5.9% per person better than the Retail Academy.

In summary, results from Part A of the survey (self-perception) show that the full-time ND: RBM students perceived their own creativity to be superior of that of the Retail Academy participants (refer to Section 5.7 - Limitations of the research and Section 5.8 - Suggestions for further studies). The Retail Academy students have, due to their working experience, showcased a more realistic perception of their own creativity levels.

Part B:

In Part B of the survey, students were required to define creativity and list as many as possible uses for a teaspoon, chair, and paperclips. Part B was designed as validation for Part A's results and proved invaluable. Although all the students outscored the Retail Academy in Part A of the questionnaire, the students could not validate their creative perceptions of themselves and scored lower than the Retail Academy students.

- The Retail Academy students obtained an average score of 64.5 per person.
- The first-year students scored 31.8 (average per person,) which is 50.7% lower than that of the Retail Academy students.
- The second-year students scored an average of 33.8 per person, which is 47.6% below that of the Retail Academy students.
- The third-year students only scored an average of 27.5 per person, which is 57.4% lower than that of the Retail Academy students.

In conclusion, the above results imply that students have an inflated self-perception of their creativity levels (when compared with the results of Part A). In Part B, students had to prove their creativity and scored substantially lower than the Retail Academy students. The Retail Academy students proved their higher-order creativity through the answers they have provided (more secondary-level creativity examples were provided). An example is to "use a teaspoon as an electric conductor or as a mirror to apply make-up". The full-time ND: RBM students used more primary creativity examples and often their answers were focused on the actual use of the object, resulting in no evidence of creativity. An example is to "use a teaspoon to stir tea".

Part C:

In Part C of the survey, students had to display their higher-order (secondary) creativity through activities such as completing incomplete drawings, combining figures into pictures using materials such as coloured pencils, paperclips, blank paper, and a brown bag (see Appendix B2). It was found that the Retail Academy students outscored their full-time counterparts by scoring an average of 15.6 per person.

- First-year students scored on average 9.7 per person, which is 15.5% less than that of the Retail Academy students.
- Second-year students scored on average 10.5% less than the Retail Academy students.
- Third-year students' average score per person was 13.6, which is 12.8% less than that of the Retail Academy students.

Based on the results above, it is evident that the Retail Academy students presented evidence of more high-level creativity. They were more creative in combining the objects, linking the

forms, and made better use of the additional materials provided (refer to Appendix B2 for examples). The full-time ND: RBM students did not present sufficient evidence to show high-level creativity in this part of the questionnaire.

Total (Sum of Part A, B and C):

Students of the Retail Academy obtained the highest total average score of 205.8 per person, followed by second-year students (184.1 per person) and then first-year students and third-year students that scored the lowest total average score per person (173.9).

From the above summary, it can be concluded that, based on the average score per person, RBM students proved to be creative. However, their level of creativity diverges from the retail industry norm as set by the Retail Academy students.

It was found that for Part A of the survey, the first-, second-, and third-year students obtained higher scores than the Retail Academy students due to the difference in their interpretation and understanding of what creativity entails. This became apparent when the full-time students had to validate their perceived creativity in Part B and Part C of the questionnaire. The full-time students scored lower than the Retail Academy students in both parts.

It is, therefore, concluded that the RBM students do not meet the necessary creative skills required as specified in the critical outcome for creativity in the ND: RBM qualification offered at the CPUT.

5.5.2 To what extent are the creativity skills of the RBM students developed over the three-year duration of the qualification?

The literature study provided ample evidence that creativity can be viewed as a skill that can be developed and improved. Unfortunately, the literature study also indicated the worldwide trend regarding the lack of creative skill development in education. The latter was also true for the RBM department at the CPUT.

The data analysis results indicate that the Retail Academy students scored overall higher with respect to their creativity when compared to the ND: RBM students. Only in one incidence did the second-years score higher than the first-year group. There was no clear evidence that there was an increase in the creativity levels of students from their first- to third year.

It is thus concluded that the RBM department at the CPUT does not have sufficient measures in place to develop the creative skills of students studying towards the ND: RBM qualification. The results indicate an overall decrease in student creativity from their first- to third year of study.

5.3.3 To what extent do gender, age and ethnicity have an impact on the creativity levels of the RBM students?

Due to the social norms, current practices, and beliefs of individuals, factors such as gender, age, and ethnicity could play a role in the creativity profile of students. With this in mind, the survey data were analysed according to these three factors and are expanded upon below.

5.3.3.1 Impact of gender on creativity

There were more females than males for the full-time students that participated in the study; however, for the Retail Academy, there were more males than females.

The impact of gender on the creativity levels of the students confirmed that the male participants were, on average, 6.4% per person higher than that of the female participants. The average score per person for the males were 188.0 and 176.0 for female participants. When considering the impact of gender on creativity, the Retail Academy male students scored the highest average score per person (213.4), followed by females (181.9).

5.3.3.2 Impact of age on creativity

It was found that the age distribution (18 – 24 years) for the full-time ND: RBM students was within the expected paradigms for students entering higher education directly after completing their secondary education. However, the Retail Academy group was all employed by various businesses throughout the WRS, resulting in the age difference between the Retail Academy group and their full-time counterparts.

No conclusive results were found indicating a link between age and creativity levels of students.

5.3.3.3 Impact of ethnicity on creativity

Ethnicity was captured through an open-ended question within the survey, where participants had to indicate their ethnicity. A total of 175 participants completed the survey of which the majority of the participants were black (122), followed by coloured (17) and white participants (14).

Due to the distribution of the data, there was no clear indication that ethnicity impacts on the creativity levels of the participants (see Section 5.7 – limitations of the research).

5.3.4 How does creativity influence students' choice of study?

In comparing the choice of study with the creativity levels of full-time ND: RBM students, some interesting conclusions were drawn. This data were only available for the full-time RBM students as the Retail Academy participants did not have the option to select a second- or third choice of study as they were nominated by their employers to enrol for a qualification presented through the Retail Academy at the CPUT.

First-year cohort: A total of 56 participants completed the survey of which only 13 (23,2%) selected the ND: RBM as their first choice of study. The average total score for the cohort was 168,9. The highest average total score per person (202,0) was for students who selected Marketing Management as their first choice of study. The thirteen students who selected RBM as their first choice of study only scored an average total score of 161,8 per person.

There were 29 different qualifications selected as the first choice of study. RBM scored the seventh-lowest total average score per person. The top three qualifications indicated as the first choice of study included:

- Marketing Management
- Journalism
- Architecture

Second-year cohort: For the second year cohort, 46 students completed the survey. Only 14 (30,4) selected RBM as their first choice of study. The average total score per person for the cohort was 184,1. The first choice of study with the highest average total score was Information Technology (252,0). Students who selected RBM as their first choice of study scored an average total score of only 170,6. Twenty-three different qualifications were identified as the first choice of study and the students who selected RBM as their first choice scored the sixth lowest. The three qualifications with the highest total average score included:

- Information Technology
- Entrepreneurship
- Law

Third-year cohort: Seventy-five students completed the survey for this cohort. The average total score for the cohort was 173,8. There were 25 different qualifications identified as the first choice of study, with only 17 (29,8%) indicating the ND: RBM as the first choice of study, with an average total score of only 172,9. This was the eleventh lowest score for the cohort. The three qualifications indicated as the first choice with the highest average total score were:

- Law
- Public Relations Management
- Town and Regional Planning

Although no explicit configuration was identified between the field of study and the creativity levels of students, it was established that the students indicating RBM as their first choice of study all scored lower than the average score obtained by the third-year cohort.

Stemming from the above, it is evident that for the first-year cohort, students who selected Marketing Management as their first choice of study obtained the highest average score per person. Students who opted for Information Technology as the first choice of study had the highest average score per person for the second-year cohort whereas students who indicated

Law as the first choice of study (third-year cohort) had the highest average score per person (see Section 5.8 – Suggestion for further studies).

5.6 RECOMMENDATIONS

To address some of the shortages expanded upon above and to enhance the prospects of ND: RBM students when entering the retail industry and their creative skills to ensure that they are adequately prepared to address complex business problems in a retail environment, the following interventions are proposed:

Since the ND: RBM qualification is not focused on the development or assessment of creativity but is instead results-driven. In order to meet the expected demands resulting from Industry 4.0, the qualification necessitates radical curriculum modifications in order to address the changes that Industry 4.0 brings. This will, however, constitute a new approach to teaching and the assessment of subject content and creativity within the RBM qualification. Educators will be required to prepare the content of different subjects in different formats to encourage creative thoughts and students should be granted the flexibility to find solutions to complex business problems that exist outside the “normal” classroom environment. This could be achieved by means of the following:

- **Preparation:** Venues at the institution should be set up to encourage creative thinking; all teaching materials should encourage the concept of knowledge generation towards creativity. Furthermore, ND: RBM students need to be better prepared for their study journey. They need to be coached and made aware of the expected different thinking methods, pre-reading, and general awareness of their environment related to their studies – guiding them to apply their theoretical knowledge to their immediate environment. The retail experience of participants was noted to be at a low level. Working experience can contribute to the thinking, understanding, and creative problem solving of complex business problems required by students.
- **Question formulation, clarification, and reformulation:** The scenarios/assessments required to be solved should be examined from many different perspectives. It could include an academic/learning stage where new concepts are taught to students for understanding the context of the problem statement. The inclusion of a creative part to the outcome of the problem will allow students to deviate their thoughts and responses and thus, allowing more creativity
- **Idea generation:** Teach students effective brainstorming techniques to use instead of rushing into finding answers/solutions to problems.
- **Idea clustering, evaluation, and action planning:** Clustering, evaluation, and action planning should be used to evaluate and develop ideas and select the best idea to serve as a solution to the business problem. Action planning the idea for implementation should also be taught to students to ensure that they are adequately

prepared to focus on the task at hand, know how to address and solve complex business problems, understand the concept of problem-solving, and more importantly, establish action plans to ensure that they reach their personal goals and objectives while studying towards the RBM qualification.

5.7 LIMITATIONS OF THE RESEARCH

The limitations experienced within the ambit of this research study are threefold:

Participation: Although the sample was found to be acceptable, a higher participation rate of the full-time ND: RBM students could have resulted in better gender and ethnicity representation. In some cases, the motivation for participation in the research was questionable, resulting in four questionnaires being rendered insufficient for inclusion in this research study.

Venues/Facilities: The venues used at the institution were not entirely suitable for the completion of the questionnaire. Traditional lecture venues were used where students sit next to each other in lines. Space was an issue and consequently, participants could observe and copy ideas from each other while completing the questionnaire, especially in Part C. This could have resulted in inflated creative levels of individuals and groups. Some participants also used their cell phones to search for ideas on the Internet. One of the study rooms in the library was subsequently identified as a more suitable venue to use for potential future studies. Here, each student can complete a questionnaire in his/her own cubical (like a voting booth) and will not be able to observe ideas from other participants.

5.8 SUGGESTIONS FOR FURTHER STUDIES

During this research study, new insights were highlighted, which could lead to further research. The following, among other things, could serve as potential avenues for further studies:

- Investigating whether a correlation exists between creativity and the selection of different qualifications as a choice of study. Thus, do students that select ND: RBM as the first choice of study have higher or lower creativity levels than students that select another qualification as their first choice of study?
- Investigating the possibility of using a creativity assessment tool for selecting potential candidates that qualify for enrolment into the ND: RBM qualification.
- Determining the creativity levels of students based on their gender, ethnicity, age, and secondary schools attended.
- Determining the impact of creativity levels on the throughput rate of students.
- Determining the impact of creativity levels on the progression of ND graduates to postgraduate studies.
- Developing a suitable model for the implementation, evaluation, and monitoring of creativity in the RBM department at the CPUT.

- Determining the impact that working experience has on the creativity levels of full-time RBM students.
- Identifying the methods that are used by RBM students to improve their creativity skills.

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APPENDIX A: SAQA REGISTERED QUALIFICATION – NATIONAL DIPLOMA: RETAIL BUSINESS MANAGEMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

REGISTERED QUALIFICATION

National Diploma: Retail Business Management

SAQA QUAL ID	QUALIFICATION TITLE			
78666	National Diploma: Retail Business Management			
ORIGINATOR				
Cape Peninsula University of Technology				
PRIMARY OR DELEGATED QUALITY ASSURANCE FUNCTIONARY			**NQF SUB-FRAMEWORK**	
CHE - Council on Higher Education			HEQSF - Higher Education Qualifications Sub-framework	
QUALIFICATION TYPE	**FIELD**		**SUBFIELD**	
National Diploma	Field 11 - Services		Wholesale and Retail	
ABET BAND	**MINIMUM CREDITS**	**PRE-2009 NQF LEVEL**	**NQF LEVEL**	**QUAL CLASS**
Undefined	360	Level 6	NQF Level 06	Regular-Provider-ELOAC
REGISTRATION STATUS		**SAQA DECISION NUMBER**	**REGISTRATION START DATE**	**REGISTRATION END DATE**
Passed the End Date - Status was "Reregistered"		SAQA 10105/14	2015-07-01	2016-10-20
LAST DATE FOR ENROLMENT		**LAST DATE FOR ACHIEVEMENT**		
2017-10-20		2021-10-20		

In all of the tables in this document, both the pre-2009 NQF Level and the NQF Level is shown. In the text (purpose statements, qualification rules, etc), any references to NQF Levels are to the pre-2009 levels unless specifically stated otherwise.

This qualification replaces:

Qual ID	Qualification Title	Pre-2009 NQF Level	NQF Level	Min Credits	Replacement Status
785	National Diploma: Retail Business Management	Level 6	Level TBA: Pre-2009 was L6	360	Complete

This qualification is replaced by:

Qual ID	Qualification Title	Pre-2009 NQF Level	NQF Level	Min Credits	Replacement Status
100768	Diploma in Retail Business Management	Not Applicable	NQF Level 06	360	Complete

PURPOSE AND RATIONALE OF THE QUALIFICATION

The qualification prepares the learner with such knowledge, insight and skills as needed to be employed as a Trainee Manager for a retail or related business so that, after gaining a few years practical experience, the learner will be able to develop into a successful Manager of a small and medium size retail business or a Branch Manager of a large retail group.

LEARNING ASSUMED TO BE IN PLACE AND RECOGNITION OF PRIOR LEARNING

School level: Grade 12, Senior Certificate or NQF level 4 or National Certificate in Advanced Retail Processes.

RECOGNISE PREVIOUS LEARNING?

N

QUALIFICATION RULES

The qualification will be awarded to a learner who has provided evidence to the satisfaction of the assessors that the stated competence of the qualification, as detailed in the specified outcomes, has been achieved, either through education and training in a single provider's learning programme, or through experience that complies with the stated specified outcomes.

EXIT LEVEL OUTCOMES

a). Specified outcomes:

The learner must be able to:

1). Undertake the general management of a retail business:

1.1. Develop business plans for new retail business opportunities
1.2. Manage a shopping centre
1.3. Manage the annual tactical operation of a retail business
1.4. Manage the day to day operations of a retail business or a retail project
1.5. Manage the house-keeping of a retail business
1.6. Manage the image of the retail business

2). Manage the marketing of a retail business

2.1. Manage the strategic marketing of a retail business on a basic level
2.2. Manage the annual tactical marketing of a retail business
2.3. Categorise the clients of a business into economically viable target groups
2.4. Conduct basic marketing research for a retail business
2.5. Lay out and display the merchandise of a retail store
2.6. Advertise and promote products of a retail business
2.7. Sell products to customers
2.8. Provide customer service
2.9. Price retail products and services

3). Manage the stock and logistics of a retail business

3.1. Manage the strategic stock and logistics of a retail business on a basic level
3.2. Manage the annual tactical stock and logistics functions of a retail business
3.3. Control the stock of a retail business
3.4. Buy products for a retail business
3.5. Transport the products of a retail business

4). Manage the human resources of a retail business

4.1. Manage the basic strategic aspects of the human resources function of a retail business
4.2. Manage the annual tactical human resources functions of a retail business
4.3. Perform human resources management functions for a retail business
4.4. Recruit personnel for a retail business
4.5. Train the personnel of a retail business
4.6. Develop a labour relations system for a retail business and perform the relevant labour relations functions

5). Manage the finance and administration of a retail business

5.1. Apply an accounting system for a small retail business
5.2. Develop a financial information system for a small retail business
5.3. Prepare a bank reconciliation statement for a small retail business
5.4. Perform financial calculations
5.5. Develop the capital acquisition structure for a small retail business
5.6. Manage the working capital of a small retail business
5.7. Structure the employment of capital in fixed assets for a small business
5.8. Design administration systems for a small retail business
5.9. Produce relevant data by operating computer software programmes used in a retail store

6). Manage the production in a retail business

6.1. Manage strategically the production in a retail business
6.2. Manage the annual tactical production functions of a retail business
6.3. Manage the day to day production in a retail business
6.4. Apply operational production management techniques in a retail business

b). Critical outcomes:

The following critical outcomes are fully embedded within this qualification:

- Identify problems and creatively make responsible decisions to solve problems so as to benefit the retail business and community as a whole
- Work effectively with others as a member of a team

 Organise and manage oneself and one's activities and responsibilities effectively
 Collect, analyse, organise and critically evaluate information
 Communicate effectively with the clients, communities, suppliers and personnel of a retail business, using mathematical and language skills, using oral and written presentations
 Understand and be able to demonstrate the use of management principles effectively, while maintaining a responsibility towards the environment and the community

ASSOCIATED ASSESSMENT CRITERIA

a). Specified assessment:

1.1.
 An effective programme has been compiled to ensure the successful development of the entrepreneurial weak points of the learner
 A viable business opportunity has been identified
 A workable business plan has been compiled for all the business functions of a retail business to ensure the successful starting of a retail business

1.2.
 The specifications of a suitable location for a shopping centre to ensure the buying of the right property have been compiled
 Draft specifications for the layout of a shopping centre have been compiled for architects to ensure the optimum utilisation of the space, and consumer satisfaction
 An ideal tenant profile for a shopping centre has been determined
 The ideal conditions that should be included in a lease agreement have been specified
 A marketing strategy to source the right kind and number of tenants for the shopping centre has been developed
 A marketing programme to recruit the required patrons for the shopping centre has been compiled
 A housekeeping programme for the shopping centre to ensure good security, safety, ergonomics and cleanness has been determined
 A long-term maintenance refurbishment programme to ensure the economic usefulness of the shopping centre has been compiled
 Effective and relevant financial and administration procedures for the shopping centre have been determined
 A communication strategy aimed at tenants to enhance relationships has been developed

1.3.
 A business plan for a year/season to co-ordinate the objectives, policies, action plans and budgets of the business functions has been compiled
 An effective organisational structure for a retail business and all the functions to ensure achievement of the annual objectives has been designed
 A suitable motivation system for the personnel to enhance their performance in all the functions in a retail business has been compiled
 Effective formal & informal communication channels with personnel and relevant stakeholders have been established
 Control programmes have been developed to ensure the achievement of the annual objectives

1.4.
 Daily and weekly plans for a retail business have been written to ensure the achievements of the daily, weekly and project objectives

 Activities in the action plans have been successfully allocated and delegated
 Personnel have been effectively utilised through application of the right motivation, training, communication and leadership style
 The ability to lead a group in achieving the operational objectives has been demonstrated
 Operational control systems to ensure achievement of the operational objectives and the effective performance of the activities in the action plans have been compiled

1.5.
 An effective tactical housekeeping management system for a retail business to ensure clear housekeeping objectives, policies, procedures, budgets, structures and control systems has been developed
 An effective operational housekeeping management system for a retail business has been developed to ensure effective cleaning, garbage removal, safety, shrinkage, security, prevention and dealing with shoplifting, ergonomics, fire prevention and drills, urban unrest protection and dealing with natural disasters
 Asset specifications and an asset register for a detail business have effectively been compiled
 A maintenance programme for the assets of a retail business has been compiled to ensure continuous operation and the most economical use of the assets

1.6.
 A strategic analysis report on the image of a retail business has been compiled to indicate the strategic direction of the business
 An effective tactical image programme for a retail business has been compiled to ensure successful image policies, budgets, action plans, procedures and controls
 The specifications for a corporate identity of a retail business has been developed to ensure the required image for the retail business
 The relevant operational public relations functions for a retail business to ensure the required image among all role players of a retail business have effectively been performed. These include: planning of social functions, conducting interviews with the media, public speaking at meetings, writing media reports, writing business reports, publications and internal newsletters

2.1.
 A basic strategic marketing programme has been developed for a retail business to demonstrate knowledge of the strategic marketing direction of the business
 An appropriate strategic marketing structure for the marketing personnel and distribution channels of the business has been designed
 A basic strategic leadership programme for the marketing personnel has been developed to ensure their support and motivation in achieving long term marketing objectives
 A basic strategic control system has been designed that will ensure the achievement of the long term marketing objectives and the correct performance of strategic actions

2.2.
 An annual marketing plan for a retail business has been compiled to ensure effective sales forecasting, marketing objectives, policies, strategies, action plans and marketing budgets
 An organisational structure and job description for the marketing personnel have been designed to ensure the achievement of marketing objectives

 A leadership programme has been developed to ensure the utilisation and motivation of the marketing personnel in achieving marketing objectives for the year
 A tactical control system compiled to ensure the achievement of the marketing objectives for the year and correct performance of the planned marketing actions

2.3.
 The customer profiles of the target groups have correctly been defined in terms of demographic, geographic and psycho-graphic factors, as well as their buying and other behaviour, to provide information which can successfully be used for the marketing strategy of a retail business
 Product specifications for the different target groups have been compiled that will ensure the satisfaction of group needs

2.4.
 A marketing research project has correctly been planned to ensure provision of the right market information and the use of the correct research methods
 Effective research has been conducted by doing the necessary fieldwork and gathering of data
 Data has correctly been processed
 A report with feasibly recommendations has been written

2.5.
 The nature, quantity, quality and time of products to be sold in a retail business have correctly been specified
 A retail store has been laid out in accordance with all the requirements to utilise the available space, satisfy the needs of the customers and to maximise sales
 A clear operational management programme has been developed for the merchandising displays in the store to ensure the right specifications for the personnel to build the displays
 A merchandise display has been built according to specifications

2.6.
 An appropriate operational, advertising and sales promotion programme for a retail business has been planned
 Specifications for advertisements have been compiled to ensure the right production of the advertisements by a production house
 A draft advertisement has been produced according to specification
 A sales promotion project according to the promotion specifications that will ensure the generation of the required sales, has been produced

2.7.
 Products have successfully been sold to customers who visit the retail store. All the steps of the sales process applicable to in-house retail selling have been applied
 Products have been successfully sold to potential customers outside a retail business. The steps of field selling have successfully been applied
 Difficult customers have successfully been dealt with
 Objections from customers have successfully been handled in such a way that the sales transactions were ensured
 A schedule for salespeople has been compiled to ensure productivity and optimal utilisation of their available time

2.8.
 An effective customer service process has been developed. It provides evidence which will contribute towards establishing loyalty and support from customers

 Customers' complaints have been resolved in such a way that they will still support the business

2.9.
 The basic price of a product or service has correctly been calculated
 Price strategies have been determined to ensure the support of the customers

3.1.
 An appropriate strategic stock and logistics plan which will demonstrate knowledge of the logistics function has been developed for a business
 A valid strategic stock and logistics structure for the personnel involved in stock and logistics for the supply chain of the business, has been designed
 A basic strategic leadership programme for the stock and logistics personnel has been developed to ensure their support and motivation in achieving the long term stock and logistics objectives
 Basic strategic control systems have been designed to ensure the achievement of long term stock objectives and the correct execution of strategic logistics actions

3.2.
 Stock and logistics of a retail business including effective stock and logistic objectives, policies, strategies, action plans and a logistics budget have effectively been planned for a year
 An annual leadership programme has been developed to ensure the utilisation and motivation of the stock and logistics personnel in achieving the logistics objectives for the year
 A control system has been designed to ensure the achievement of the stock and logistics objectives for the year and correct execution of the planned actions

3.3.
 An effective stock control system has been designed
 The nature, quantity, time and quality of products to be bought, have correctly been specified
 Stock from the prescribed supplier has been ordered correctly
 Stocks received have correctly been checked to ensure compliance with stock orders and quality specifications
 An effective procedure and system for stock-taking have been compiled
 Stock has accurately been counted
 Policies and procedures that will keep damage to shrinkage of stock at a minimum level, have been compiled
 Technological equipment that will effectively control the stock of the business, has been specified

3.4.
 A supplier specification policy has been compiled to ensure the right supply of prescribed products at the required conditions
 A buying procedure and documentation system have been developed to ensure the correct buying by the purchasing personnel
 A list of acceptable suppliers for the products of a retail store has been compiled
 Acceptable and profitable purchasing conditions for the business in a buying situation have been negotiated
 A purchasing agreement has been drafted to record the negotiated purchasing conditions
 A supplier development programme for the business has been developed to ensure future supply of products

 A relationship programme with suppliers has been developed to ensure a continuous supply of products to the business

3.5.
 The best possible way of transporting products from the supplier to the business has been determined
 The specifications for the best way to physically move the products through the business have been compiled
 The specifications on how to store the stock in the warehouse in the most economical and safest way have been compiled
 Stocks have been stored according to storage specifications
 The best possible way to physically move the product from the point of sale to the customers' homes has been determined

4.1.
 An appropriate strategic human resources programme demonstrating knowledge of the strategic human resources function has been developed
 An equal opportunity policy and strategy in compliance with the relevant labour acts have been developed
 A basic strategic personnel structure for the human resources function has been designed to ensure preparedness for future developments in the personnel field
 A basic strategic leadership programme for the personnel responsible for the human resources function has been developed to ensure their support and motivation in achieving the long term objectives in this field
 A basic strategic control system has been designed to ensure the achievement of long term human resources objectives and the correct implementation of strategic actions

4.2.
 An appropriate annual human resources plan has been developed
 An organisational structure and job descriptions for the personnel responsible for the human resources function ;have been developed to ensure achievement of the annual personnel objectives
 An annual leadership programme has been developed to ensure the utilisation and motivation of the personnel in achieving the annual human resources objectives
 A control system has been designed to ensure the achievement of the human resources objectives for ;the year and correct implementation of the planned personnel actions

4.3.
 Job descriptions ensuring optimum productivity within the positions in a retail business have been designed
 Person specifications for the positions in a retail business have been drawn up to ensure the placement of the best person in the job
 Jobs in a retail business have been fairly graded
 Remuneration and working conditions for the positions in retail business has been correctly determined
 The performance of the personnel has objectively been evaluated through a performance appraisal system

4.4.
 A personnel advertisement has been drawn up to ensure recruiting appropriately qualified persons for a vacancy
 A short list has been compiled of the best applicants whose CVs best fit the person specification for the position

 Recruitment interviews have effectively been conducted, leading to the best decision on the applicant for the vacancy
 The testing of applicants has been organised so that it will supply further relevant information about applicants towards making the best decision on the best candidate
 The right and best applicant for a position has been selected
 A contract of employment has been compiled to comply with all the legal requirements and that will protect the employer against misconduct by the employee
 The unsuccessful applicants have been corresponded with in such a way that they will still maintain their dignity and the positive image of the employer
 An induction programme for new employees has been compiled to ensure maximum productivity as soon as possible

4.5.
 The training needs of personnel towards full utilisation of potential, have been identified
 A training programme to eliminate skills shortcomings has been developed
 A control system to ensure the efficiency of training programmes has been compiled

4.6.
 Work rules for a retail business have been compiled to ensure that all personnel know what they must and must not do
 A disciplinary policy and code have been developed to ensure fair and consistent behaviour by the employer in cases of misconduct by personnel
 A grievance procedure has been designed to resolve grievances as quickly as possible before they become too serious to handle
 A retrenchment procedure has been formulated to ensure compliance to the relevant labour acts
 A recognition agreement has been drafted with a trade union to ensure compliance to the labour acts and form the basis for good relations with the trade union
 A strategy for negotiations with trade unions on conditions of work has been developed to ensure the best possible outcome for the employer during the negotiations
 A simulated meeting between shop stewards and management has been chaired to ensure compliance with and implementation of the agreed issues
 A simulated disciplinary hearing has been held in compliance with the legal requirements giving fair treatment to personnel in cases of misconduct
 A strike plan has been designed that will minimise the risks for the employer during a strike
 An effective lock-out strategy has been compiled
 A workplace democracy plan has been drawn up in compliance with the relevant labour acts to ensure higher productivity and efficiency by personnel

5.1.
 Transactions in the different accounting books of the business have correctly been recorded
 An income statement and balance sheet have correctly been drawn up
 The accounting software needs for the business have effectively been specified

5.2.
 Budgets for a retail business have accurately been compiled
 A cash flow budget for a retail business has accurately been drawn up
 Relevant financial reports have accurately been compiled

 Financial statements and cash flow statements have correctly bee interpreted
 The break-even point for a retail business has accurately been calculated
 The cost and sales price of a product has accurately been calculated

5.3.
 A cash receipts and cash payments journal have accurately been reconciled with the bank statement
 Differences between the bank statements and the cash journals have correctly been solved

5.4.
 The financial implications of discounts and shrinkage on the gross profit margins have correctly been calculated
 The effect of financial leverage on the business has accurately been measured
 The market share of a retail business has accurately been measured
 The effect of shoplifting on the gross profit margin of a retail business has correctly been calculated

5.5.
 A suitable equity and long term capital structure for a retail business has been compiled
 A suitable short term capital structure for a retail business has been compiled
 A relevant financial strategy for loans and/or overdraft facilities from the bank have been compiled

5.6.
 An effective debtors policy and procedure have been compiled
 An effective cash policy and procedure have been compiled
 An effective credit system and policy have been compiled
 An effective financial stock control policy and procedure have been compiled
 An effective short term investment policy and procedure have been compiled

5.7.
 Record of the nature, volume and value of fixed assets of a retail business have correctly been compiled
 The long term investment policy and procedure for a retail business have effectively been compiled

5.8.
 An effective internal mail and communication system for the business has been compiled
 An effective external communication system (mail, fax, e-mail, internet, etc.) for the business has been compiled
 An effective documentation system for the business has been developed
 An effective computer software system for the administration of a retail business has been specified and selected

5.9.
 The ability to use a spreadsheet programme to supply management information and to solve problems, has been demonstrated
 The ability to use a word processing programme for written communication, has been demonstrated
 A programme for designing advertisements and web sites has correctly been operated
 A point of sale system has correctly been operated

6.1.
 An appropriate strategic analysis for the production process in a retail business has been conducted
 An appropriate strategic production management programme has been compiled
 A suitable lay-out of the production facilities has been designed
 An effective quality control system (e.g. HACCP) for a retail business has been developed
 A policy and procedure for the successful development of new products / services for a retail business have been compile

6.2
 The annual objectives and budget for the production unit in a retail store have been compiled
 An annual schedule for the production process in a retail store has correctly been compiled
 A control system has been developed that will ensure the achievement of the production objectives for the year and correct implementation of the planned actions

6.3.
 Effectively daily / weekly objectives for the production unit in a retail store have been compiled
 Daily / weekly operation schedules for the production unit in a retail business have been compiled that will ensure the achievement of the production objectives
 Operational production problems have correctly been identified and effectively solved

6.4.
 The production break-even points have accurately been calculated by using break-even analysis and sensitivity analysis techniques
 Work study / activity sampling have been accurately conducted to improve productivity
 Basic MRP1 and MRP2 have correctly been applied in a retail business
 Gantt and Pert have correctly been applied in a retail project
 A scientific decision on the allocation of resources has correctly been made, based on basic linear programming

Integrated assessment:

It is important that the learner understands the inter-relationship of all the business functions in a retail business and that the success of a retail business depends on how effective these functions work together in the process of achieving the objectives of the retail business. The integrated assessment summatively takes the form of a project in which the student must select an existing retail business and evaluate how effectively each business function contributes to the success of the retail business. Formative assessment comprises class tests, presentations and examinations

ARTICULATION OPTIONS

Progress to B.Tech: Retail Business Management, B. Tech: Management and B.Tech: Business Administration and/or any other related professional degrees.

MODERATION OPTIONS

Annual review by Advisory Committee of the Retail Business Management programme, total review and accreditation by SERTEC every four years and the use of external moderators.

CRITERIA FOR THE REGISTRATION OF ASSESSORS

This is determined by SERTEC.

REREGISTRATION HISTORY

As per the SAQA Board decision/s at that time, this qualification was Reregistered in 2009; 2012; 2015.

NOTES

While South Africa still had Technikons, all of their qualifications were registered under the Committee of Technikon Principals. After the Technikons became Universities of Technology or merged with Universities, the qualifications were registered under each of these institutions, and the CTP qualifications fell away (hence the end date of 2006, above). Where relevant, replacement information is shown in the table above.

LEARNING PROGRAMMES RECORDED AGAINST THIS QUALIFICATION:

When qualifications are replaced, some (but not all) of their learning programmes are moved to the replacement qualifications. If a learning programme appears to be missing from here, please check the replaced qualification.

NONE

PROVIDERS CURRENTLY ACCREDITED TO OFFER THIS QUALIFICATION:

This information shows the current accreditations (i.e. those not past their accreditation end dates), and is the most complete record available to SAQA as of today. Some Primary or Delegated Quality Assurance Functionaries have a lag in their recording systems for provider accreditation, in turn leading to a lag in notifying SAQA of all the providers that they have accredited to offer qualifications and unit standards, as well as any extensions to accreditation end dates. The relevant Primary or Delegated Quality Assurance Functionary should be notified if a record appears to be missing from here.

APPENDIX B: QUESTIONNAIRE-RELATED INFORMATION

APPENDIX B1: CREATIVITY QUESTIONNAIRE

The objective of this questionnaire is to assess the creativity levels of Retail Business Management students at Cape Peninsula University of Technology.

Declaration from Researcher:

This questionnaire will be used for a research study. All information will be treated with the required research ethics and confidentiality as stipulated by Faculty of Business and Management Sciences' Ethics Committee. No individual profiles will be drawn. All the data will be used to compile an overall creativity profile. The results from this study will be used for conferences and publications.

Signed: _____ Date: _____

_____

Name and Surname: _____

Participants Declaration:

I, the undersigned hereby acknowledge that:

- I participate in this research voluntary
- I give my consent that the data I provide could be used for the research, "Assessing the creativity levels of retail business management students studying at the Cape Peninsula University of Technology".
- I grant the researcher my consent to use the data and results extracted for publications and conference presentations.
- I understand that all reference to experience, age, gender and race are purely used for statistical analysis and not any discrimination against me as an individual.

Signed: _____ Date: _____

_____

Biographical information:

Age		**Year of study**	**1st**	**2nd**	**3rd**
Gender		**Years of Retailing Experience**			
Race					

Choice of study	**First Choice**	
	Second Choice	
	Third Choice	
School Attended		
Matric Results		

Questionnaire Instructions:

- Think of your own creative experience and activities when answering the questions.
- Do not answer what you think “should be the correct” answer.
- Use your first natural response/answer to the questions; try not to think about each question for too long.
- Indicate your response to the applicable questions as follows:
    - If you feel that you agree 100% with the statement, select 5
    - If you feel that you disagree 100% select 0
    - If you agree partially, select 3 or 4
    - If you disagree somewhat, select 1 or 2
- Nobody is always 100% creative. Therefore there are no right or wrong answers. Answer as honest as possible to what is true about you – this will ensure the most applicable and valuable results.

Part A

	Creativity Statements	Strongly Agree	Agree	Moderately Agree	Moderately Disagree	Disagree	Strongly Disagree
1	Creativity is very important to be successful.	5	4	3	2	1	0
2	Creativity is an important component in the Retail Business Management curriculum at CPUT.	5	4	3	2	1	0
3	You prefer to study in a creative environment.	5	4	3	2	1	0
4	Creativity is not an important characteristics required to be a successful Retail Business Manager.	5	4	3	2	1	0
5	Creativity is a critical requirement for being a successful Retail Business Management student.	5	4	3	2	1	0
6	You are by nature a creative student – creativeness comes naturally to you.	5	4	3	2	1	0
7	Fellow students do not see you as a creative student.	5	4	3	2	1	0
8	You are more creative than the average student.	5	4	3	2	1	0
9	You trust your judgement with your creative abilities.	5	4	3	2	1	0
10	You become more creative the further you progress with your studies.	5	4	3	2	1	0
11	You produce a number of creative ideas each week.	5	4	3	2	1	0
12	You are stimulated in an environment where you have the freedom to think for yourself.	5	4	3	2	1	0
13	You need to keep developing your skills on becoming more creative.	5	4	3	2	1	0
14	You are most creative when you work alone.	5	4	3	2	1	0
15	You use many resources in evaluating effective solutions for a problem.	5	4	3	2	1	0
16	Evaluations at CPUT do not test your creative abilities.	5	4	3	2	1	0
17	You are normally the one in your study group that initiates new ideas or thoughts.	5	4	3	2	1	0
18	You rather listen to ideas from others.	5	4	3	2	1	0
19	You prefer to combine/alter existing ideas to generate something new.	5	4	3	2	1	0
20	You are most creative when working in a team.	5	4	3	2	1	0
21	You are excited by your own new ideas.	5	4	3	2	1	0
22	You are outspoken and willing to present/defend your new ideas.	5	4	3	2	1	0
23	Fellow students see you as un-predictable in your thinking and interpretations of situations.	5	4	3	2	1	0
24	You have to concentrate hard to be creative.	5	4	3	2	1	0
25	You enjoy challenging situations where you can prove your creativeness.	5	4	3	2	1	0
26	You seldom come up with ideas for solving a problem.	5	4	3	2	1	0
27	You always evaluate situations to find the most creative solutions.	5	4	3	2	1	0
28	You are creative as a result of your self-discipline.	5	4	3	2	1	0

29	You always find different/un-usual ways of doing your daily activities.	5	4	3	2	1	0
30	You think outside the “box” and are happy finding solutions outside the “box”.	5	4	3	2	1	0
31	You have specific daily time set out for creativity.	5	4	3	2	1	0
32	Creative ideas come to you in your dreams.	5	4	3	2	1	0
33	You have your own place where you work on your creativity.	5	4	3	2	1	0
34	You prefer to assist fellow students to be creative rather than be creative yourself.	5	4	3	2	1	0
35	You always solve problems with solutions that are familiar and the outcome is known to you.	5	4	3	2	1	0
36	You are not given enough opportunities to show your creativity in your studies.	5	4	3	2	1	0
37	You are more creative when you have tight deadlines to meet.	5	4	3	2	1	0
38	You prefer to study following a routine	5	4	3	2	1	0
39	You generate a number of possible solutions to a problem or a situation.	5	4	3	2	1	0
40	You are uncomfortable in taking time to solve crucial problems.	5	4	3	2	1	0

Part B: Use your **creativity** for the following:

1. Explain your understanding of creativity.

2. List as many possible uses for a teaspoon.

3. List as many as possible uses for a chair.

4. You have unlimited paperclips, list as many possible uses for the paperclips.

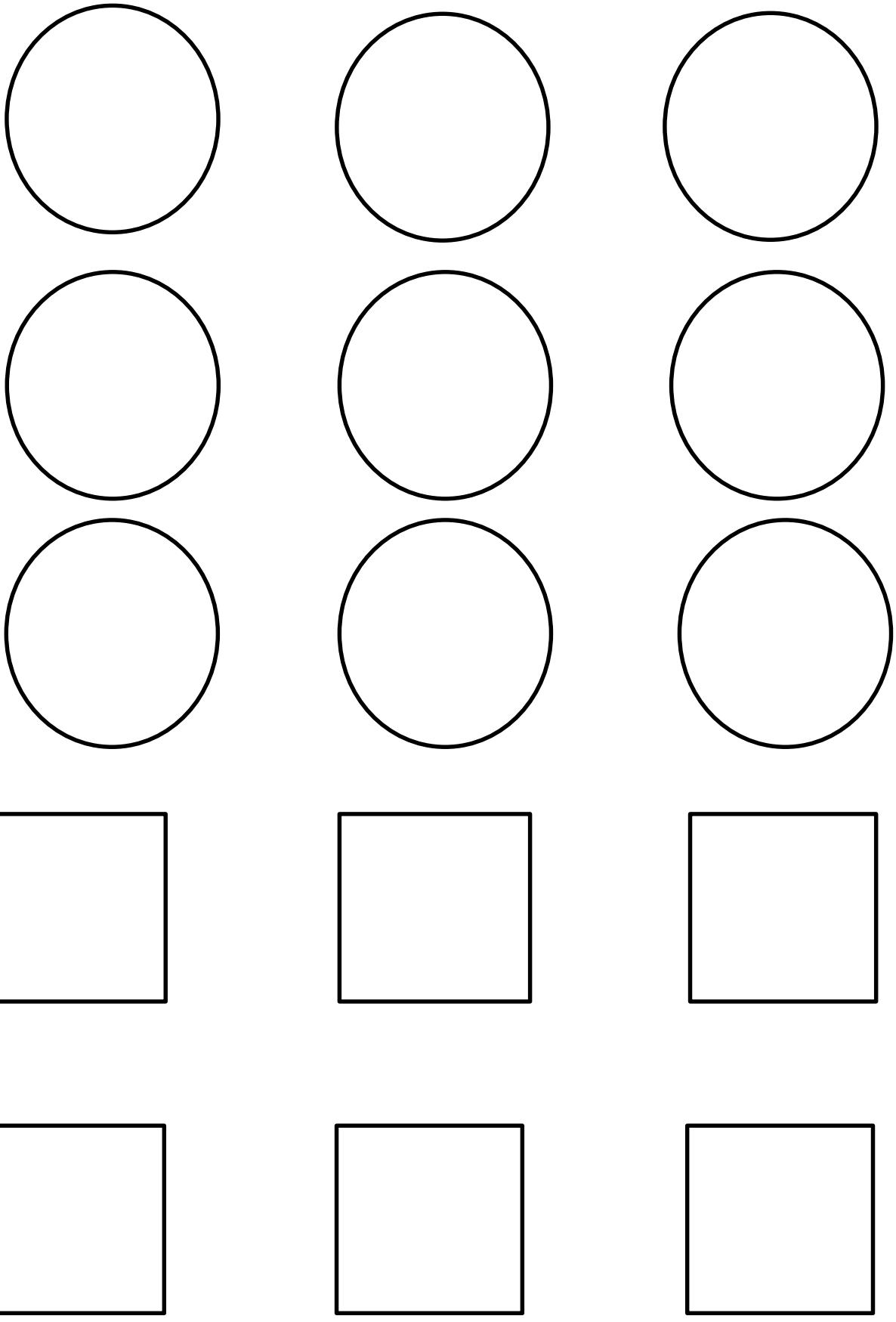
5. Link the following words in one sentence: Retail, customers, bicycle and conflict

Part C: Creativity

You have 30 minutes to complete this exercise.

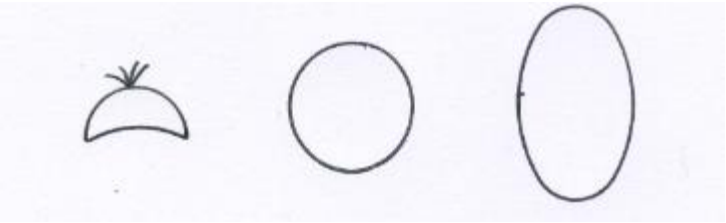
1. Each participant will be given a paper bag with the instruction to:
   "Use the material given to you to demonstrate your creativity".

2. Place everything back in the paper bag (if not possible, ask the researcher for assistance) and clearly mark the paper bag with your name, surname and student number.



Complete the picture:

Combine the following into one picture:



APPENDIX B2: ADDITIONAL MATERIAL USED IN PART C OF THE SURVEY

APPENDIX B3: MARKING MATRIX

Biographical information:

Age		**Year of study**	**1st**	**2nd**	**3rd**
Gender		**Years of Retailing Experience**			
Race					

Choice of study	**First Choice**	
	Second Choice	
	Third Choice	
School Attended		
Matric Results		

Part A:		
		Score
Part A:	Calculate total from matrix	
Total		

Part B:				
	Creativity (C) High Level (8,9,10) Intermediate (5,6,7) Low Level (1,2,3,4) **Level**	**Number (n)** Total number of applicable responses **Count total responses**	**Total** **C x n**	
Question 1				
Question 2				
Question 3				
Question 4				
Question 5				
Total				

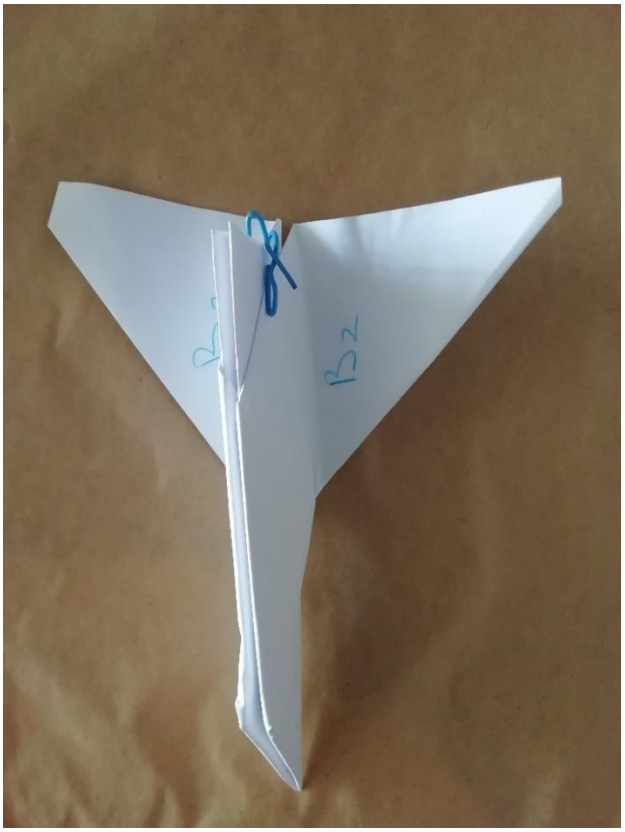
Part C

Part C	Nine circles and six squares	All figures linked and paper clips and page used 6	All figures linked and paper clips used 5	All figures linked 4	Some figures linked 3	All figures individually used 2	Some figures individually used 1	Incomplete 0
	Incomplete Figure	Advanced Drawing, Paper clips and paper used 6	Advanced Drawing and Paper clips used 5	Complete drawing 4	Simple drawing 3	Simple figure 2	Incomplete figure 1	Incomplete 0
	Combine figures	Advanced Drawing, all Paper clips and paper used 6	Advanced Drawing and Paper clips 5	Complete drawing 4	Simple drawing all three figures 3	Simple figure used all three figures 2	Incomplete figure did not use all three figures 1	Incomplete 0
Total								

Part C: Additional Material (20)

Total Part C:

APPENDIX B4: EXAMPLES OF CREATIVE IDEAS PRESENTED BY STUDENT USING THE ADDITIONAL MATERIAL SUPPLIED

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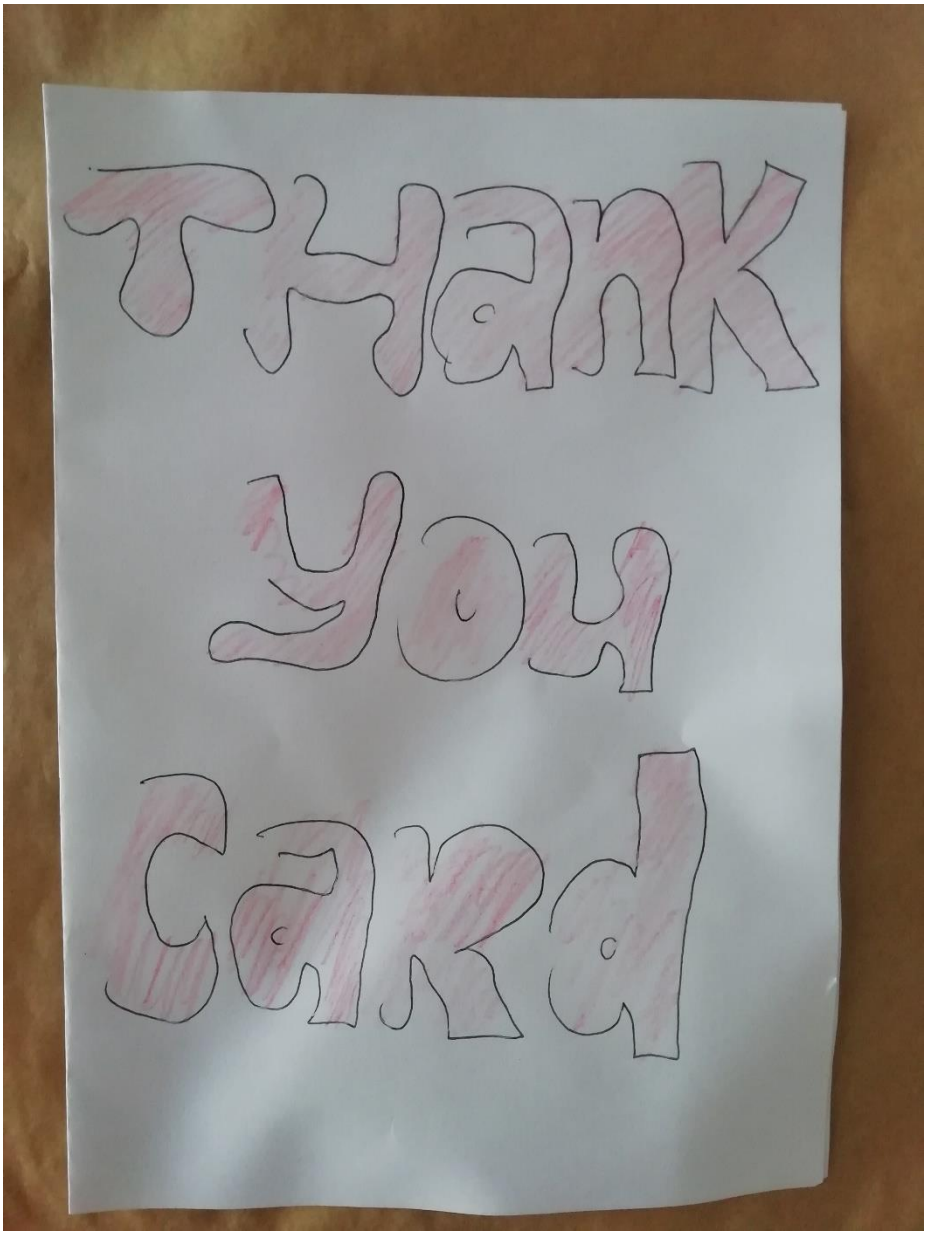
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APPENDIX C: ICBMD CONFERENCE

APPENDIX C.1: ACCEPTANCE LETTER FOR PRESENTATION AND PUBLICATION OF PAPER AT THE 2019 ICBMD

From: Icbmd2019.papers
Sent: Saturday, 27 July 2019 10:08
To: Dr Suzaan Le Roux
Cc: Eric Van Zyl
Subject: Re: Paper submission

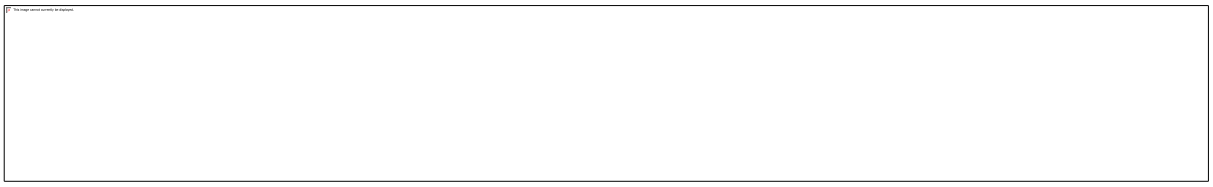
Dear Mr van Zyl,

Please find attached the reviews of your paper submitted for presentation at the 2019 International Conference on Business and Management Dynamics (ICBMD). We are happy to share that your paper has been accepted for both presentation and publication, provided revisions are made.

An acceptance letter will follow in due course.

Warm regards,
ICBMD Conference Organisers

Website: http://icbmd.org.za/



APPENDIX C.2: PUBLISHED DHET ACCREDITED CONFERENCE PAPER

THE EVALUATION OF RETAIL BUSINESS MANAGEMENT STUDENT CREATIVITY LEVELS AT A SELECTED UNIVERSITY IN THE WESTERN CAPE

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Authors bibliography

Eric van Zyl[6]: Eric is a Lecturer in the Department of Retail Business Management at the Cape Peninsula University of Technology in Cape Town, South Africa. He has a particular interest in creativity and how it can be utilised in both an educational- and retail business environment.

Suzaan le Roux: Suzaan is a Senior Lecturer at the Cape Peninsula University of Technology, South Africa. She has a keen interest in mobile technology and the use of creative activities and how these can positively impact on student learning and development in a Higher Education environment.

[6] Eric van Zyl

THE EVALUATION OF RETAIL BUSINESS MANAGEMENT STUDENT CREATIVITY LEVELS: A CASE OF THE CAPE PENINSULA UNIVERSITY OF TECHNOLOGY

Abstract

Retail in South Africa is a dynamic industry that requires creativity as a critical skill to solve complex business problems, especially considering its impact on the Fourth Industrial Revolution. The South African Qualification Authority emphasises the importance of creativity as a critical outcome for the National Diploma in Retail Business Management (RBM) qualification by stating that graduates should be able to identify problems and creatively make responsible decisions to solve business problems. However, due to the diversity of creativity, higher education institutions neither commit in the evaluation nor the development of student creativity. Consequently, no formal structures exist to evaluate creativity which, in turn, results in the potential loss of skills development for divergent thinking, problem-solving, identification of new and unique business opportunities, and self-reliance. Using the above as a basis, this study placed emphasis on ascertaining the extent to which RBM students meet the specified critical outcome of creativity. Empirical research was conducted by obtaining primary quantitative data from a purposively selected sample of RBM student enrolled at the Cape Peninsula University of Technology through deploying survey research. Stemming from the results, it is apparent that sampled students did not meet the required levels of creativity nor were systems in place to evaluate and develop the creative skills of these students.

Keywords: Creativity, skills, retail, Fourth Industrial Revolution, education, evaluation

Introduction

Creativity in education is gradually drawing attention in both developed and developing countries. Creativity is "the production of novel, useful products" (Mumford, 2003:110) and "ideas" (Amabile & Pratt, 2016); it refers to the production of something that is "original and worthwhile" (Sternberg, 2011:479).

The benefit of creativity lies in that it is the ultimate contributor to the progress of mankind. De Bono (1992:169) argues that "there is no doubt that creativity is the most important human resource of all. Without creativity, there would be no progress, and we would be forever repeating the same patterns". Creativity is increasingly viewed as a means to bridge the gap between where we were and where we want to be. Creativity is thus an essential requirement for business to identify where they are currently and where they need to be. Businesses see creativity as a critical success factor to succeed in the near to distant future. Consequently, creativity was included as a critical outcome in the National Diploma (ND): Retail Business Management (RBM) qualification as required by the South African Qualifications Authority (SAQA). Businesses opine that students do not meet the expected levels of creativity in solving business-related problems and are unable to effectively utilise their existing knowledge in unfamiliar situations. Thus, students do not challenge the status quo, but stay within the safe parameters of the information obtained from textbooks or study material for addressing problem-solving situations. It seems that students have lost their free-thinking ability – the ability to be creative.

Stemming from the above, a broad base analogy can be drawn that the creativity levels of RBM students are not on par with the anticipated SAQA outcomes as stipulated in the ND: RBM qualification, and consequently, their current knowledge and skills do not meet industry requirements. In order to succeed in the vibrant South African and international retail industry, RBM graduates need to be creative, especially during the Fourth Industrial Revolution (Industry 4.0)[7]. Creativity is a crucial skill required by retail business managers to succeed in the competitive retail industry. However, currently, no set standard framework to gauge the

[7] The Fourth Industrial Revolution (Industry 4.0) is a state in which manufacturing systems and the objects they create are not simply connected, drawing physical information into the digital realm, but also communicate, analyse, and use that information to drive further intelligent action back in the physical world to execute a physical-to-digital-to-physical transition. In other words, Industry 4.0 makes it possible to manufacture entirely new things in entirely new ways and revolutionise supply chains, production, and business models (Sniderman, Mahto, & Cotteleer, 2016).

appropriate creativity levels expected from RBM graduates exists within the curriculum. Using the above as a basis, the following question can be asked: *"To what extent do the creativity levels of ND: RBM graduates meet retail industry requirements?"*

As no earlier studies have evaluated the creativity levels of RMB students in a South African higher education environment, this study aimed to test the following hypothesis: *H1: Creativity levels in sampled ND: RBM students meet retail industry requirements.*

Literature review

A brief overview of creativity and the Fourth Industrial Revolution

Creativity is a mental characteristic (a distinguishing feature or attribute of an item, person, phenomenon, etc.) that allows a person to think outside of the box which, in turn, results in innovative or different approaches to a particular task (BusinessDictionary.com, 2019). Creativity is "the act" and the "ability" that involve two processes of "thinking" and then "producing". It is about "passion and commitment" (Naiman, 2019:1) and is the "most important leadership quality for success in business" (IBM, 2010a). Due to individual interpretations, understandings, and applications of creativity, it means different things to different people. Although creativity is described and defined in many ways, there are two important contributors to creativity, namely convergent thinking[8] and divergent thinking[9] as these are vital to the problem-solving experience of the creative process (Gomez, 2007:33). However, the creative process is incomplete when constraints exist in identifying possible solutions and evaluating the possible solutions. Therefore, the understanding and interpretation of the term "creativity" results in different attitudes, meanings, and definitions, especially in RBM environment.

Retail is the fourth strongest economic contributor to the South African Gross Domestic Product (GDP) (W&RSETA, 2017). The Wholesale and Retail Sector Education and Training Authority (W&RSETA) skills plan (W&RSETA, 2017) states that the Wholesale and Retail Sector (WRS) employs 3.161 million people; this is 22 per cent of the total labour force in South Africa (Statistics South Africa, 2018). According to Statistics South Africa (2018), retail sales in South Africa increased, on average, 4.54 per cent per year from 2003 to 2018. This indicates that the South African retail sector is growing and vibrant; however, it is also rapidly changing. The W&RSETA (2017) warns about various changes that could impact on the sector in the near future. These changes include factors such as more empowered customers that use the Internet and social media to increase their product and business knowledge, as well as establishing their voices, the evolving retail landscape that resulted in skill shortages, and the rapid changes in technology advancement. These drivers are critical as the impact of the Fourth Industrial Revolutions (Industry 4.0) will accelerate changes experienced by the WRS. Xu, David and Kim (2018:90) warn that the "speed and measure of the changes" resulting from Industry 4.0 are not to be ignored as these changes will cause shifts in power, wealth, and knowledge. The influence of Industry 4.0 on leaders and businesses across the world will enforce extreme business and societal transformations, resulting in a demand for new and transformed skills (Hanley, Daecher, Cotteleer & Sniderman, 2019).

Taking into account the above, it could be argued that during Industry 4.0, the productivity and performance of businesses depend increasingly on knowledge-based workers who are able to apply their intelligence and creativity in the work milieu. Therefore, the education and training landscape will have to change fundamentally. Industry 4.0 will change the future worker; the new type of worker will be required to be a knowledge worker that can use critical thinking, creativity, collaboration, and communication in a changing work milieu (Henning, 2019:1).

Although many of the future scarce skills will be focused around new technologies, there will be a greater skills demand for human skills such as "creativity, originality and initiative, critical thinking, persuasion, and negotiation" (Davis, 2016:12). Davis (2016) emphasises the

[8] Convert thinking emphasises the "reproduction of existing data and adaptation of old responses to new situations in a more or less logical manner" (Gomez, 2007:33).

[9] Divergent thinking is characterised by the "flexibility and originality in the production of new ideas" (Gomez, 2007:33).

importance of developing creativity, not only as a scarce human skill, but also to provide individuals with the ability to identify, analyse, and creatively solve the extreme expected changes they will face because of Industry 4.0. New technologies will cause 44 per cent of current positions to drastically change by 2025. The value of creativity is thus eminent for both individuals and businesses. It is, therefore, essential that the development of creativity is considered as a critical factor in both the ND: RBM qualification and WRS. This will ensure that students are adequately prepared to apply their creativity, intelligence, and skills to resolve business problems within the WRS, especially during Industry 4.0.

Creativity in education

Creativity has been with us since the beginning of time, but how did it become such an imperative educational dynamic? Shaheen (2010) underwrites the link between education and creativity to the launch of the Soviet Union's Sputnik 1, the first man-made object to go into space on 4 October 1957. It was apparent that the Soviet Union won the space race which was seen as the failure of the creative ability of Western nations' engineers. According to Wilson (2005), "several waves of creativity in education" will hit the world. The current wave can be attributed to the need for education to meet the demands of society due to the impact of Industry 4.0. Sir Ken Robinson (2006:Online), author and international speaker on creativity, states that creativity is "as important in education as literacy" and that "we should treat it with the same status". He further sustains that transformation will be enforced on businesses which, in turn, will have an impact on existing and new professions during Industry 4.0. It is thus understood that creativity is a critical requirement across the world to enable countries to sustain their economies through higher employment levels (thus alleviating poverty). It could be argued that should South Africa be able to understand the importance of incorporating creativity as an essential inclusive educational contributor like in other first-world countries, it could greatly assist in building a resilient workforce that could lead to a decrease in the high unemployment rate in South Africa (Statistics South Africa, 2018). Furthermore, it is believed that through the effective development of South Africans' creative skills, South Arica can become a truly resilient and creative nation that can survive Industry 4.0 through its capable and creative human capital (Majola, 2019).

Wu, Wu, Chen and Chen (2014:2) explored the key factors affecting the creativity development of higher education students and found that "creativity is a very important and complicated concept". Wu et al. (2014:4) opine that "the improvement of quality management and the development of creativity" must be the two main directions higher education institutions should be heading toward in an attempt "to improve overall operational performance". They emphasise that educators should identify the real factors that affect student creativity, and once these factors are understood, the most appropriate, reliable, and suitable tool for measuring the creativity can be applied to measure creativity development. They further state that "creative thinking, critical thinking, and problem-solving abilities are all important basic qualities" for future businesses and that higher education institutions, generating scholars and intellects, should be "responsible for training creative individuals suited to the demands of today's society" (Wu et al., 2014:17). Fields and Bisschoff (2014:24) explain that the purpose of higher education institutions lies beyond career preparation only as students should also meet future challenges and "contribute original thoughts to challenges in the workplace and society as a whole". Robinson and Aronica (2015) acknowledge how particularly first world countries, recognise the prominence of creativity in their education structures. However, the question remains whether these claims regarding the importance of creativity, is prioritised and formally evaluated. Fjortoft (2018) states that one of the challenges faced by educational institutions and educators is the ability to prepare students to be creative as educators should use students' creative thinking as the basis for creative skills development that should be obtained through the development of assessment methods, like brain storming, case studies, class discussions, and assignments. Students should be challenged to use divergent and convergent thinking to increase their creative thinking and optimise opportunities for more effective ways of accomplishing goals and objectives.

Creativity in education: A developed country perspective

Arguably, one of the most significant influences for the inclusion of creativity in education came about in 1958, when President Eisenhower of the United States (US) signed the National Defence Education Act (NDEA) into law. This was a defining indication regarding the importance of creativity in education for the US government (United States of America Congress, 1958). Many countries have followed suit as the need to address the needs of a rapid changing world, facing a growing uncertain future and economic changes, increased (Shaheen, 2010). Nations realised that in order to respond to these factors, they required an educated workforce. More recently, nations are faced with the pressing matter of unemployment rates, rapid technology changes, and Industry 4.0 (W&RSETA, 2017). Governments thus see the incorporation of creativity in their education systems as a key strategy to meet the demand for creative, knowledge-based workers. Florida (2014:xiv) states that "the only way forward is to make all jobs creative jobs, infusing … every form of human endeavour with creativity and human potential" and the only way this objective will be attained is to incorporate creativity in education. Many developed countries have successfully incorporated creativity in education and have found that its inclusion in education have provided students with more stimulating learning processes, enhanced stimulation and acceptance of the university culture, higher attention and preoccupation, higher and better targeted motivation (Edsys, 2019; Suciu, 2014), as well as improved communication-, emotional-, and social skills (Edsys, 2019).

Table 1 provides a summary on how various developed countries encompass creativity in their education structures during the past ten years (2010 – 2019).

Table 1: Creativity in education: A developed country perspective

Country	Description
Australia Education.sa.gov.au (2019)	Critical- and creative thinking are at the core of the Australian education system. Their objective is to ensure that learners become self-reliant and creative individuals through critical and creative thinking.
Canada Shaheen (2010)	The Canadian education system demarcates creative thinking as the most critical and essential learning outcome.
China Secretary-General of the OECD (2015)	Emphasis is placed on the moral, intellectual, and physical development of students. China aims at improving students' creativity and research capability, as well as helping students develop a sense of social responsibility through practical experiences. It improves their creativity and self-development to support them to achieve their full potentials.
France Blanquer (2018)	Emphasis is placed on the lower secondary education levels – an environment that breeds a taste for creativity in all learners need to be sturdily implemented.
Germany Schmidt & Pavón (2017)	The significant prominence of the German curriculum is on the improvement of children's creative aptitudes.
Hong Kong Tam, Phillipson & Phillipson (2017)	Creativity is comprehended as a higher order thinking skill and is given "top priority" through the development of critical thinking, creativity, and communication skills.
Ireland Madigan & Doyle (2018)	Ireland developed a strategy for creative development in education called "Unlocking Creativity". They develop creativity through encouraging ambition, risk, innovation, and excellence by harnessing the talent and passion of all citizens.
Japan Smith (2018)	Japan initiated the "Yutori education model" that is shaped on a notion of "zest for living", through which children from a young age are given the freedom to develop individuality and creativity.

Netherlands Dutch Ministry of Education (2014)	Creative development is one of the primary principles of the Netherlands education system. There is an increasing emphasis on the development of pupils' higher order thinking skills, creativity, scientific attitude, as well as research- and problem-solving skills, within and across disciplines. Pupils are increasingly encouraged to think about and reach a meaningful understanding of the world they live in and are thus more likely to become knowledgeable sources themselves. This cultivation of creativity goes beyond mere cognitive learning; it involves imagination, feeling and emotion, critical thinking, open-end solutions and space to experiment and cooperate.
Scotland Education Scotland (2013)	Creativity is viewed as the next major enterprise for the society. Creativity is seen as a valuable skill in retail, education, health, government, and business, and has become an integral part of the Scottish culture.
Singapore Hogan (2014)	Singapore launched the "Teach less, learn more approach" with the main objective to develop learners with enquiring minds, who can think critically and creatively. Strong emphasis is placed on the creativity, individual strengths, and social skills of learners from pre-school up to college level.
South Korea UNESCO Bangkok (2019)	Creativity was integrated as a critical outcome since 2015 (to be fully implemented in 2020) through the cultivation of a creative and integrative learner. A "competency-based learning" method is used where learners experience flexible and creative learning.
Sweden Swedish Ministry of Education and Research (2016:18, 25)	The Swedish National Development Plan states that education should provide "the conditions for developing creative skills through addressing the individual need of pupils and focus on "multi-faceted personal development into active, creative, competent, and responsible individuals and citizens."
United Kingdom (UK) Wyse & Ferrari (2015)	Education in the UK emphasises creative skills development and is known for its creative elements such as their child-centred education system. The main objective of the National Curriculum is to enable pupils to think creatively and critically, to solve problems, and to make a difference for the better. This should give pupils the opportunity to become creative, innovative, and enterprising.

From Table 1 above, it is evident that many developed countries have identified the need and importance of incorporating creativity in their education systems. Many of these education systems focus on key factors such as the development of creative thinking and self-reliance, the all-round development of individuals, the intellectual and physical development of students, a holistic approach to human development, the growth of higher order thinking skills, teaching students the skills to understand the world they live in, and developing creativity as an integral part of national culture. These factors are all crucial for the development of the new generation of creative knowledge workers required to overcome the effects of Industry 4.0.

Creativity in education: A developing country perspective

As early as 1991, UNESCO found that the best way for developing countries to achieve creativity is by "re-directing the institutional systems in education to creative approaches" (UNESCO, 1991:13). Although creativity has become an essential component in many developed countries, the topic seems to be neglected in developing countries. In developing countries, the non-existence of the integration of creative thinking skills in their curricula are a decisive blemish in their future positioning and realising transformations in political-, economic-, and cultural areas (UNESCO, 1991). It can thus be argued that due to these pressing issues,

developing countries are behind in terms of incorporating creativity into their education systems and funding earmarked to address these issues are not utilised for the development of creativity strategies and -policies. This conclusion is confirmed by Winthrop (2015) who describes that when a comparison was done between developed- and developing countries in terms of an average number of years in school and levels of achievement, developing countries were about 100 years behind the developed countries. Furthermore, the education levels of the adult workforce in developed countries measured by average number of school years, double that of their developing country counterparts. Winthrop concluded that it will take well over 100 years for students in developing countries to catch up to the learning levels of today's developed country students. It is believed that developing countries could leapfrog a few stages through the implementation of creativity and technology in education.

Table 2 provides an overview of research conducted in developing countries on how creativity is circumscribed in education from 2010 – 2019.

Table 2: Creativity in education: A developing country perspective

Country	Description
South Africa South African Department of Basic Education (2010); Ngozo & Mtantato (2018)	The South African education and training system should not only provide knowledge and skills required to the economy but should also contribute to developing thinking citizens who can function effectively, creatively, and ethically as part of a democratic society. They should understand their society and be able to participate fully in its political-, social- and cultural life. South Africa has the worst education system of middle-income countries that participate in cross-national assessments of educational achievement. South Africa spends more per capita on education than most advanced economies, yet the primary education system was rated 126th out of 138 countries for the 2016 – 2017 period.
Egypt Secretary-General of the OECD (2015)	The Egypt education department has announced some drastic changes from the current education system, but no reference can be found on the inclusion of creativity as an outcome for education. The quality of education continues to be a stumbling block to optimise the full development of children's potential.
India American Society for Engineering Education (2017)	Higher education in India adopted programmes to support small-scale industries and to enhance design and creativity. However, India experiences educational challenges relating to the large number of students wanting to access education, inadequate funding, language barriers, and extremely high student-educator ratios.
Turkey Kizilçelik (2015)	Although creativity is discussed more frequently, no significant progress has been made to formalise it in the Turkish education system. Students are taught by listening to the teacher talking, resulting in the teacher being the subject in the learning process.
Pakistan Ministry of Federal Education & Professional Training (2018)	Education is seen as a major contributor to social- and economic development. Pakistan aims to achieve this objective through equipping young people with knowledge, creativity, critical thinking-, and leadership skills to play a responsible role as global citizens. Pakistan identified creativity as a key skill for their youth; however, various educational challenges enjoy priority over the formal implementation of creativity in their education system.

Table 2 shows that developing countries face various challenges in education concerning creativity. Duncan (2013) identified the importance of education around the world, but more specifically for developing countries, and quoted former South African president, Nelson Mandela, who stated that "education is the most powerful weapon which you can use to change the world." Rueckert (2019) opines that developing countries still battle with various issues in their education systems such as a lack of educational funding, the quality or lack of educators, insufficient schools, lack of essential education material, exclusion from education due to discrimination (e.g., gender, disabilities, language, ethnicity etc.), countries in war or at risk of conflict, and various poverty factors (e.g., travel distance between home and school, hunger and poor nutrition, cost of education). These barriers withhold children from their basic human right to education. Furthermore, as indicated in Table 2 above, many developing countries focus on their own immediate educational challenges that include poor education systems, poor quality of education, insufficient funding, language barriers in education, poorly qualified educators, corruption, high drop-out rates, school violence and inequality of education. These constraints avert developing counties from developing education systems that prioritise creativity. It is, therefore, evident that in order to change the South African educational landscape, and consequently the world, these barriers should be addressed, not necessarily in isolation, but as part of the critical and pressing issues of which creativity should be included as an equal pressing element in the South African education system. Creativity should be regarded as important as literacy (Robinson, 2006). Not only will this bridge the gap between the rich and poor, but it will also provide South Africa with the ability to maintain economic competitiveness in a global environment. Creativity has previously been identified as one of the key skills to overcome the effects of Industry 4.0 and sustaining a competitive economy. Davis (2016:4) has warned that if countries do not address Industry 4.0, this "revolution will lead to situations where the gap between the richest and the poorest in the world will become even greater".

Creativity in the National Diploma: Retail Business Management

According to SAQA (2018), creativity is a vital requirement for the ND in RBM qualification. The qualification stipulates that creativity should be one of the critical embedded outcomes for the RBM qualification where learners must be able to "identify problems and creatively make responsible decisions to solve problems so as to benefit the retail business and community as a whole" (SAQA, 2018:Online). RBM graduates should, therefore, be able to think and solve problems beyond prevailing confines of the curriculum. They should be able to challenge the status quo and use creativity to confront the fast-changing environment of the retail industry. Graduates should be able to generate creative resolutions and strategies in solving multifaceted management challenges facing the industry. However, because creativity is such a diverse topic, it seems that educational institutions do not commit in the development of learner creativity and that it is a topic sidestepped by educators who do not always see the importance of creativity in a higher education environment.

Stemming from the above, it is evident that "the roots of a creative society are in basic education" (Morris, 2006:1). Consequently, it is essential to guide and support students in applying and developing their creative thinking skills on various levels. Education is a critical component for meeting the scare skills (i.e., leadership, management, product knowledge, computer literacy (basic and advanced), customer service, supervision, communication, numeracy and literacy, financial acumen, and problem-solving (creativity)) required from the retail industry (W&RSETA, 2017).

Research design, methodology and methods/s

This research study fell within the positivistic research paradigm, was empirical in nature, and took on the form of survey research to glean primary data pertaining to the creativity levels of RBM students. Quantitative data were obtained from full-time undergraduate ND students enrolled in the RBM course at the Cape Peninsula University of Technology (CPUT), Cape Town, South Africa. In order to compare the creativity profile of these students with individuals from the retail industry that have some form of business experience, students from the CPUT Retail Academy served as a comparison sample. The Retail Academy is a function under the

Wholesale and Retail Leadership Chair situated at the CPUT. The academy is funded by the W&RSETA and offers various qualifications aimed at addressing the critical skills shortages experienced in the South African WRS. It further aims to drive research and contribute to the development of professionalism in the WRS.

A total of 16 out of a possible 17 Retail Academy students voluntary participated in the study. These students represented various retail businesses and had sufficient retail experience (an average of 13.2 years) to use their creativity levels as a norm/standard to be compared against their full-time ND: RBM counterparts. The Retail Academy students were selected by their employers to enrol for the RBM qualification as they have been identified as having potential (the necessary motivation and skills) to become future store managers for their companies. Since the size of the target population (first- to third-year students registered for the ND: RBM course at the CPUT during 2018) was known, probability sampling was used to select the sample. A total of 159 RBM students out of a possible 530 students participated in this research study. Data were collected by means of a questionnaire, with the main intent to obtain data for analysis and to draw relevant conclusions. The questionnaire consisted of 40 Likert-scale questions (where students had to rate their creativity levels), and open-ended questions where students had to corroborate their understanding of creativity and their creative aptitudes on the different levels of creativity as pronounced by Maslow (1976). Primary creativity was determined by listing various uses for a variety of objects like a teaspoon, chair, and paper clips. Secondary creativity was evaluated by combining random words into a single sentence, completing incomplete pictures, and combining shapes to form a picture using provided materials such as paperclips, blank sheets of paper, pencils, and a paper bag. Students participated in the study out of free will, which implies that they could withdraw from the study at any time; all had to be ND: RBM students registered at the CPUT.

Results and discussion

Considering the research objective of this paper, relevant discussions in this section take place under the following headings: 1) descriptive statistics and 2) inferential statistics.

- **Descriptive statistics**

Considering the responses received from 175 participants (159 first- to third-year students and 16 students from the Retail Academy), a summary of the descriptive statistics is shown below.

First- to third-year participants' age ranged between 18 and 33 years of which the majority was African (85%) and female (62.3%). As expected, most of the participants (71.6%) had no prior retail experience. On the other hand, students from the Retail Academy had a minimum of three years RBM experience. These participants had an accumulated 203 years of experience – an average of 12.7 years per participant. Only 23.2% of the first-year participants selected RBM as a first choice of study compared to their second-year counterparts (30.4%). Of these, 23.8% did not progress from their first- to second year, and 28.7% did not reach their third year of studies. This implies that a shocking 76.8% of students did not study a course of their first preference and almost a third of these did not complete the RBM qualification. For the purpose of this research study these aspects did not have an adverse effect on the results, but within the context of the curriculum it proved to be problematic. It was evident that if a student had no or a limited understanding of the subject matter, developing their creativity was more challenging.

- **Inferential statistics**

In order to ascertain the participants' self-perception of their own creativity levels, they had to complete an array of Likert scale (0 = strongly disagree, 1 = disagree, 2 = moderately disagree, 3 = moderately agree, 4 = agree, and 5 = strongly agree) questions (scored out of a total of 200) in Part A of the questionnaire. Part B consisted of open-ended questions evaluating the degree of a participant's creativity (with an unlimited score total), while in Part C participants were presented with unstructured material to demonstrate their creativity (scored out of a total of 20).

Part A: Self-perception of creativity

In Part A, participants were required to evaluate their self-perceived levels of creativity according to the following three main categories of Maslow (1954):

- **Higher order of lateral thinking (cognition):** The ability to think, reason and remember, and to use these abilities for higher level creative thinking/problem-solving.
- **Eco-systematic influence in creative thinking:** The impact of a direct, dynamic and complex environment that will influence one's way of thinking or problem-solving.
- **Personal experience:** The everyday experience and responsiveness of internal and external happenings that influence an individual's response or action concerning creativity.

A summary of the results is shown in Table 3 overleaf.

Table 3: Summary of Part A: Self-perception questionnaire (ND: RBM students)

	Creativity Statements	Strongly Agree (5)	Agree (4)	Moderately Agree (3)	Moderately Disagree (2)	Disagree (1)	Strongly Disagree (0)	Mean	Standard Deviation
1	Creativity is very important to be successful.	51,6 %	35,8 %	10,7 %	0,6 %	0,0 %	1,3 %	**4,3**	**0,9**
2	Creativity is an important component in the Retail Business Management curriculum.	34,0 %	40,9 %	20,1 %	3,1 %	1,3 %	0,6 %	**4,0**	**0,9**
3	I prefer to study in a creative environment.	51,6 %	23,9 %	15,7 %	5,7 %	1,9 %	1,3 %	**4,1**	**1,1**
4	Creativity is not an important characteristic required to be a successful Retail Business Manager.	5,7 %	4,4 %	11,9 %	19,5 %	23,3 %	35,2 %	**1,4**	**1,5**
5	Creativity is a critical requirement for being a successful Retail Business Management student.	31,4 %	28,9 %	28,3 %	4,4 %	3,8 %	3,1 %	**3,7**	**1,2**
6	I am by nature a creative student – creativeness comes naturally to me.	20,1 %	27,0 %	32,1 %	11,9 %	4,4 %	4,4 %	**3,3**	**1,3**
7	Fellow students do not see me as a creative student.	11,9 %	10,7 %	33,3 %	14,5 %	16,4 %	13,2 %	**2,5**	**1,5**
8	I am more creative than the average student.	9,4 %	23,3 %	41,5 %	15,1 %	6,3 %	4,4 %	**3,0**	**1,2**
9	I trust my judgement with my creative abilities.	27,7 %	41,5 %	20,8 %	3,1 %	4,4 %	2,5 %	**3,8**	**1,2**
10	I become more creative the further I progress with my studies.	52,8 %	25,8 %	17,6 %	1,3 %	1,9 %	0,6 %	**4,2**	**1,0**
11	I produce a number of creative ideas each week.	12,6 %	18,9 %	42,8 %	16,4 %	6,9 %	2,5 %	**3,1**	**1,2**
12	I am stimulated in an environment where I have the freedom to think for myself.	42,1 %	25,8 %	23,3 %	8,2 %	0,0 %	0,6 %	**4,0**	**1,0**
13	I need to keep developing my skills on becoming more creative.	62,3 %	25,8 %	9,4 %	1,3 %	0,0 %	1,3 %	**4,5**	**0,9**
14	I am most creative when I work alone.	34,0 %	21,4 %	23,9 %	12,6 %	5,0 %	3,1 %	**3,6**	**1,4**
15	I use many resources in evaluating effective solutions for a problem.	25,8 %	34,6 %	29,6 %	8,8 %	0,0 %	1,3 %	**3,7**	**1,0**
16	Evaluations at CPUT do not test my creative abilities.	12,6 %	10,7 %	20,1 %	28,9 %	13,2 %	14,5 %	**2,4**	**1,5**
17	I am normally the one in my study group that initiates new ideas or thoughts.	15,7 %	25,2 %	39,6 %	11,9 %	5,0 %	2,5 %	**3,3**	**1,2**

18	I would rather listen to ideas from others.	11,9 %	15,7 %	25,8 %	23,9 %	11,9 %	10,7 %	**2,6**	**1,5**
19	I prefer to combine/alter existing ideas to generate something new.	36,5 %	35,2 %	20,1 %	6,3 %	1,9 %	0,0 %	**4,0**	**1,0**
20	I am most creative when working in a team.	31,4 %	19,5 %	25,8 %	13,2 %	7,5 %	2,5 %	**3,5**	**1,4**
21	I am excited by my own new ideas.	45,9 %	30,8 %	20,1 %	2,5 %	0,0 %	0,6 %	**4,2**	**0,9**
22	I am outspoken and willing to present/defend new ideas.	37,1 %	30,8 %	20,1 %	8,2 %	3,8 %	0,0 %	**3,9**	**1,1**
23	Fellow students see me as unpredictable in my thinking and interpretations of situations.	20,8 %	18,9 %	32,1 %	18,9 %	5,7 %	3,1 %	**3,2**	**1,3**
24	I have to concentrate hard to be creative.	32,1 %	22,6 %	25,2 %	12,6 %	5,0 %	2,5 %	**3,6**	**1,3**
25	I enjoy challenging situations where I can prove my creativeness.	43,4 %	30,8 %	20,8 %	1,9 %	1,3 %	1,9 %	**4,1**	**1,1**
26	I seldom come up with ideas for solving a problem.	8,2 %	33,3 %	28,3 %	14,5 %	10,7 %	5,0 %	**3,0**	**1,3**
27	I always evaluate situations to find the most creative solution(s).	30,2 %	30,2 %	30,8 %	6,9 %	0,6 %	1,3 %	**3,8**	**1,1**
28	I am creative as a result of my self-discipline.	33,3 %	33,3 %	20,1 %	8,8 %	2,5 %	1,9 %	**3,8**	**1,2**
29	I always find different/unusual ways of doing my daily activities.	25,8 %	23,3 %	35,8 %	10,7 %	3,1 %	1,3 %	**3,5**	**1,2**
30	I think outside the “box” and are happy finding solutions outside the “box”.	28,9 %	30,2 %	30,2 %	8,2 %	1,3 %	1,3 %	**3,7**	**1,1**
31	I have specific daily time set out for creativity.	8,2 %	11,3 %	21,4 %	23,9 %	18,2 %	17,0 %	**2,2**	**1,5**
32	Creative ideas come to me in my dreams.	6,3 %	13,8 %	15,1 %	21,4 %	20,8 %	22,6 %	**2,0**	**1,5**
33	I have my own place where I work on my creativity.	10,1 %	13,2 %	19,5 %	21,4 %	13,2 %	22,6 %	**2,2**	**1,6**
34	I prefer to assist fellow students to be creative rather than be creative myself.	15,1 %	7,5 %	28,9 %	18,2 %	19,5 %	10,7 %	**2,5**	**1,5**
35	I always solve problems with solutions that are familiar, and the outcome is known to myself.	20,8 %	27,7 %	27,0 %	16,4 %	6,9 %	1,3 %	**3,4**	**1,2**
36	I am not given enough opportunities to show my creativity in my studies.	20,8 %	18,2 %	27,0 %	14,5 %	11,9 %	7,5 %	**3,0**	**1,5**
37	I am more creative when I have tight deadlines to meet.	33,3 %	18,9 %	22,0 %	11,9 %	8,2 %	5,7 %	**3,4**	**1,5**
38	I prefer to study following a routine.	30,2 %	23,3 %	18,2 %	13,8 %	8,8 %	5,7 %	**3,3**	**1,5**
39	I generate a number of possible solutions to a problem or a situation.	24,5 %	32,7 %	36,5 %	4,4 %	1,9 %	0,0 %	**3,7**	**0,9**
40	I am uncomfortable in taking time to solve crucial problems.	13,8 %	16,4 %	28,3 %	22,6 %	8,2 %	10,7 %	**2,7**	**1,5**

Stemming from the results in Table 3, it appears that the majority of full-time ND: RBM students had a higher self-perception of their creativity levels when compared to their Retail Academy counterparts. The five questions which had the greatest influence on students' self-perception of creativity included Question 13 (mean score of 4.5), Question 1 (mean score of 4.3), Questions 10 and 21 (mean score of 4.2), Questions 3 and 25 (means score of 4.1) and Questions 2, 12, and 19 (mean score of 4.0). However, it is believed that due to a lack of creativity experience, the full-time students have rated their creativity levels higher than what their actual creative levels are. Their level of creativity diverges from the industry norm as set by the Retail Academy cohort. It was found that for Part A of the questionnaire, all the full-time students obtained higher scores (7.13%) than their Retail Academy counterparts which implies that the ND: RBM students' self-perception of creativity was higher than that of the Retail Academy students. In addition, the full-time RBM students perceived themselves to be more creative than they actually are. Ironically, the opposite is true because of the vast amount of retail business experience (on average 13.2 years) among the Retail Academy students and their exposure to creativity in the WRS – these students thus had a better understanding of their creativity skills and consequently, rated themselves more realistically. It is acknowledged that the full-time RBM students did not receive any formal creativity skills development within the South African education system, resulting in them having less knowledge and understanding of creativity; they also had a lack of retail experience. This became apparent in Part B and Part C of the questionnaire, as discussed in more detail below.

Part B: Understanding of creativity and creative ability

Part B (and Part C) of the questionnaire were evaluated and scored by the researcher according to the levels of creativity identified in the participants' answers. To ensure the reliability and validity of results, the scores were moderated by two independent subject-matter experts. This ensured unbiasedness in the assessment of the answers.

Part B of the questionnaire evaluated students' understanding of creativity and their creative ability by means of the following five questions:

- **Question 1: Explain your understanding of creativity:** This question evaluated students' perceived understanding of creativity. Participant responses were evaluated on a scale adopted from the levels of creativity as described by Maslow:
  - **High levels of creativity (Primary creativity):** Student understands creativity as a process used by individuals to make new/original discoveries or innovations/concepts. (Mark allocation = 3 out of possible 3).
  - **Intermediate levels of creativity (Secondary creativity):** Students understand creativity as discovering methods to combine earlier creativity to find new discoveries or methods. (Mark allocation = 2 out of possible 3).
  - **Low levels of creativity:** Student indicates no understanding of creativity. (Mark allocation = 1 out of possible 3).
- **Question 2: List as many as possible uses for a teaspoon; Question 3: List as many as possible uses for a chair; Question 4: List as many possible uses for paperclips**: These three questions were used to 1) determine how many different uses the students could identify for a given object (captured as a "*n*" factor), and 2) evaluate each factor provided according to the three levels of creativity as defined in Question 1 (Part B). For each *n* factor with a high level of creativity, the student was awarded three marks, for each *n* factor with an intermediate level of creativity, the student received two marks, and each *n* factor with a low level of creativity was awarded one mark. Based on the results, a creativity ratio for each student could be calculated by multiplying the *n* factor with the level of creativity score.
  Questions 2, 3 and 4 were designed to ensure that all participants could score according to their own creativity levels as the objects used in the questions were

everyday objects (teaspoon, chair, paperclips) and not related to any retail business experience. The objective of these three questions was to test the perceived creativity of a student. The data revealed that the first-year students, although with a higher self-perceived creativity, could not proof higher creativity levels and scored substantially lower than the Retail Academy students.

- **Question 5: Link the following words in one sentence: Retail, customers, bicycle and conflict:** This question tested the ability of students to combine four basic retail-related words into one sensible sentence. Students were also evaluated on the different levels of creativity shown. Similar than previous results, the RBM students could not proof their self-perceived higher levels of creativity using high levels of creativity (primary creativity), something the Retail Academy students could do. One noticeable observation was the inability of participants, especially full-time RBM students, to construct a grammatically correct sentence with the given words.

Stemming from the above, Part B indicates the superior creativity levels of the Retail Academy students as they outscored their full-time counterparts. RBM students' understanding of creativity was tested practically and they scored substantially lower than the Retail Academy students. It could be argued that the Retail Academy students used their knowledge of creativity, obtained from their working environment, to score substantially higher through providing more examples of high-level creativity. Although RBM students had a large *n* factor, their level of creativity was low, resulting in 1 mark, whereas the Retail Academy students had a lower *n* factor, but their creativity level was high, resulting in higher totals (maximum 3 marks). A notable observation was the number of full-time students who merely defined creativity as "thinking outside the box" but could not provide clear evidence regarding their understanding or "higher levels" of creativity.

Part C: Creativity profile

Part C of the questionnaire evaluated the higher-level creativity of students in the form of unstructured and incomplete figures that participants had to complete. Participants had total freedom to provide evidence of their creativity. The material provided to participants included three colour pencils, three paper clips, three blank sheets of paper, a page with circles and squares, an uncompleted diagram, and basic forms that had to be combined into a single form/drawing. The first section consisted of nine circles and six squares on an A4 page. Students were evaluated on their level of creativity using the provided shapes. The creativity levels ranged from low-level creativity (when individual shapes were used) to high-level creativity (when an advanced combination/linking of shapes was used) that included the use of paper clips and the rest of the page (refer to Section 4.2.4).

One constraint of the study was the available venues used to conduct the research. Venues were standard lecture rooms that allowed participants who were not sure what to do, to look around to see what other participants were doing, thus gaining ideas. Many participants found inspiration from observing what other participants were constructing. Ideally, venues should have been set up like a study hall were students were isolated by using individual workstations similar to that of voting booths.

Creativity comparison: ND RBM vs Retail Academy

Using the questionnaire, the creativity results of full-time RBM students were compared to their Retail Academy counterparts who represented a variety of retail businesses in the South African WRS. The Retail Academy cohort was deemed a suitable comparison sample as they had an average of 12.7 years retail experience per student. This period is considered to be sufficient to fully understand the WRS, have adequate exposure to creativity and experience in the challenges and opportunities of the WRS, and develop creativity skills as required by the WRS.

Table 4: Average creativity score per student

	Average score per student

	Part A	Part B	Part C	Total
First-year cohort (n=56)	132.6	31.8	9.7	174.0
Second-year cohort (n=46)	137.7	33.8	12.9	184.1
Third-year cohort (n=57)	132.8	27.5	13.6	173.9
Retail Academy cohort (n=16)	125.4	64.5	15.6	205.8

Table 4 above indicates no significant increase in the creativity levels of RBM students from their first- (174.0) to third year of study (184.1). However, the third-year cohort's average creativity levels decreased on average by 10,2 points per student to an average total of 173,9. It can, therefore, be concluded that students are not afforded with sufficient opportunity to develop their creativity within the ND: RBM qualification.

Table 5: Average creativity level per student

	Part A	Measured against Retail Academy	Part B	Measured against Retail Academy	Part C	Measured against Retail Academy	Total (Part A, B & C)	Measured against Retail Academy
First-year cohort (n=56)	132.6	5.7%	31.8	-50.7%	9.7	-37.8%	174	-15.5
Second-year cohort (n=46)	137.7	9.8%	33.8	-47.6%	12.9	-17.3%	184.1	-10.5
Third-year cohort (n=57)	132.8	5.9%	27.5	-57.4%	13.6	-12.8%	173.9	-15.5
Retail Academy cohort (n=16)	125.4	0.0	64.5	0.0	15.6	0.0	205.8	0.0

Table 5 shows that ND: RBM students are creative; however, their level of creativity diverges from the industry norm as set by the Retail Academy cohort. Considering Part A of the questionnaire, the ND: RBM students obtained higher scores (on average 7.13%) than their Retail Academy counterparts. The variance in the creativity levels occurred in Part B and Part C of the questionnaire. For Part B, where the different levels of creative thinking were validated, results reveal that the full-time ND: RBM students did not meet the required creativity levels expected by the retail industry. For Part C, results reveal that the full-time students, measured against the Retail Academy students, did not meet the required creativity levels expected by the WRS. The RBM students scored on average 22.6% less than the Retail Academy students. It can be concluded that although RBM students perceived themselves as being creative, there is a lack in the validation of their perceived creativity as evident in Part B and Part C of the questionnaire. The inference could, therefore, be made that ND: RBM students do not meet the expected creativity skills (critical outcome) as required by the SAQA -registered ND: RBM qualification.

Conclusion

The WRS operates in a very dynamic and highly competitive global environment that deals with the impact of Industry 4.0 on a daily basis. Creativity is a critical skill for businesses to survive as it is the fuel required for driving the modern knowledge worker in generating new ideas and opportunities using creative problem-solving techniques. Despite industry requirements, research results show that ND: RBM students will find it difficult to adapt and function in the demanding environment of Industry 4.0 as there is no significant increase in the creativity levels of RBM students from their first- to third year of study. Furthermore, the creativity level of ND: RBM students proved to be low and did not adhere to industry

requirements. Furthermore, RBM students do not have the necessary creativity skills to make a difference in the WRS. Though third-year students had the knowledge required as prescribed in the outcomes of the ND: RBM qualification, they did not know how to apply this knowledge through creative thinking in an uncertain and new environment. Lower than expected creativity levels will have a direct and adverse impact on graduates' ability to cope in the WRS. It can, therefore, be concluded that students enrolled for the ND: RBM qualification at the CPUT are not provided with sufficient opportunities to successfully develop their creativity skills. The inference could, therefore, be made that critical skills, associated with the incorporation of creativity in the education system, can bridge the current creativity gap that exists between the creativity levels of ND: RBM students and the creativity skills expected by the WRS. Avenues for further research which are suggested include, but are not limited to, the possibility of using a creativity assessment tool as part of the selection tools for selecting candidates for gaining access to the ND: RBM qualification and to identify ways as to how RBM students can improve their creativity skills .

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APPENDIX C.3: DHET ACCREDITED CONFERENCE PROCEEDINGS

Overview

International Conference on Business and Management Dynamics (ICBMD-2019)

Theme: Managing business competitiveness in times of glocalization

Swakopmund Hotel and Entertainment Centre, Namibia
September 2–4, 2019

ISBN: 978-1-928396-17-8

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International Conference on Business and Management Dynamics
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Paper 32

The Evaluation of Retail Business Management Student Creativity Levels at a Selected University in the Western Cape

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Abstract: Retail in South Africa is a dynamic industry that requires creativity as a critical skill to solve complex business problems, especially considering its impact on the Fourth Industrial Revolution. The South African Qualification Authority emphasizes the importance of creativity as a critical outcome for the National Diploma in Retail Business Management qualification by stating that graduates should be able to identify problems and creatively make responsible decisions to solve business problems. However, due to the diversity of creativity, higher education institutions neither commit in the evaluation nor the development of student creativity. Consequently, no formal structures exist to evaluate creativity which, in turn, results in the potential loss of skills development that influences divergent thinking, problem-solving, decision-making, the identification of new and unique business opportunities, and student self-reliance. Using the above as a basis, this study aims to determine the extent to which Retail Business Management students meet the specified critical outcome of creativity. Survey research was conducted by obtaining primary quantitative data from a purposively selected sample of Retail Business Management students enrolled at a selected university in the Western Cape. Stemming from the results, it is apparent that sampled students did not meet the required levels of creativity and no systems are in place to evaluate and develop the creative skills of these students.

Keywords: *Creativity, skills, retail, Fourth Industrial Revolution, education, evaluation*

International Conference of Business & Management Dynamics

DAY 1 (Monday, 2 September 2019)			
Time	Event		
08:00 – 09:00	**Registration**		
09:00 – 09:10	**Introduction**: Grafton Whyte (Director of Namibia Business School)		
09:15- 09:30	**Welcome address**: Frednard Gideon – Pro Vice-Chancellor: Academic Affairs of University of Namibia (UNAM)		
09:35 – 09:50	**Guest speaker**: Luvuyo Rani, CEO & Founder of Silulo Ulutho Technology		
09:55 – 10:30	**Keynote address 1**: Bisey Uirab (Chief Executive Officer of Namibia Port Authority)		
10:30 – 10:45	**Vote of thanks** Michael Darko (ICBMD Conference Convener)		
10:45 – 11:15	**Tea and coffee break**		
TECHNICAL SESSION 1 --- ABSTRACT / FULL-PAPER			
Time	**Venue A**	**Venue B**	**Venue C**
11:15 – 11:25	Loading of presentations	Loading of presentations	
11:25 – 11:40	**LEA1** Effectiveness of the leadership development programme within Eskom, South Africa by Ruth Myeni / Muhammad Hoque	**SOC1** Social Networks and entrepreneurial opportunity for female-owned small- and medium- scale enterprises in South Western Nigeria by Ernest Etim / Chux Iwu	**SUP1** Diffusion of Supply Chain Distribution System to capture the African Marketplace: A Case of Apparel Company by Thokozani Mbhele / Luvuyo Mthimkhulu
11:45 – 12:00	**KNO1** Creating sustainable economies for Africa through Knowledge Economy Philosophy by Charles Mazhazhate / Sena Steven	**VCA1** Venture Capital and Entrepreneurial development in Gauteng by Monde Faku	**ORG1** Organizational climate's impact on performance: a South African cement factory case by Solomon Nhlapo / Naphtali Maruma / Moleboge Nhlapo
12:05 – 12:20	**MAR1** YouTube marketing communication usage and demographic variables influence on the electronic word-of-mouth and behavioural attitude association among Generation Z in South Africa by Rodney Duffett	**ENTR2** Investigating the impact of year of study, entrepreneurship inexposure and financial constraints on entrepreneurial interest among some university students in South-Africa by Apelele Ganati / John Aderibigbe / Tendia Chimucheka	**INO2** Systematic literature review on innovation activities of informal Micro Enterprises in Gauteng Province, South Africa by Lavhelesani Mulibana / Ravinder Rena
12:15 – 12:40	**PERC1** How do University of KwaZulu-Natal students' perceive Woolworths Green Branding Initiatives? by Vuyo Grootboom / Vannie Naidoo	**INO1** An Evaluation Of E-Services Innovation Capabilities in Gauteng Provincial Departments by Tebogo Sethibe	**BEC1** An empirical study of the Causes of Overloading Practices in Namibia's Trucking Industry by Samuel Mensah / Richard Milinga
12:45 – 13:00	**BIN1** Business Intelligence adoption by small scale enterprises in Namibia. A review of literature by Teressa Chikohora	**PSY1** Positive psychological capital and employee engagement as predictors of creative performance behaviour among bankers by Catherine Chovwen / Blessing Martins / Peter Famakinde	**TAX2** Taxing the informal sector in Zimbabwe: An Avenue for an expanded tax base, crippling of the informal sector activities or both? by Favourate Mpofu / Karina Coetzee

13:00 – 13:50	**Lunch**		
DAY 1 (Monday, 2 September 2019) - continued			
TECHNICAL SESSION 2 --- ABSTRACT / FULL-PAPER			
Time	**Venue A**	**Venue B**	**Venue C**
13:50 – 14:00	Loading of presentations	Loading of presentations	
14:00 – 14:15	**SME2** How document usage can positively influence South African Small, Medium and Micro Enterprise sustainability, in theory by Juan-Pierré Bruwer and Ashwin Petersen	**FIN2** Access to formal markets among rural cattle farming households in Maquassi Hills Local Municipality, North Test, South Africa by Sithembiso Nxumalo / K Motsoeneng"	**DMC1** Impact of digital marketing communication on guest houses and B&Bs in the Cape metropole by Zinzi Magoda
14:20 – 14:35	**SOE1** Challenges among Namibian economic and productive SOEs and corporate governance practices by Kofi Boamah	**DEF1** The cost of Credit Default in the Vehicle Finance Industry in South Africa by Nomaphelo Soga / Darlington Onojaefe / Lawrence Obokoh	**RIS1** Entrepreneurial Risks management challenges within the maritime SMEs sector of South Africa by Phyllis Chikwati / Job Dubihlela
14:40 – 14:55	**BUS1** An assessment of the business process review: A case study of the Finance Division at the University of KwaZulu-Natal by Nancy Thangavelu / Vannie Naidoo	**IAU1** Relevant internal audit skills for the future: an evaluation of current curricula by Lise Botha	**PSY2 (virtual)** An investigative study on the relationship between Work Motivation (Intrinsic & Extrinsic) and Employee Engagement in a South African Higher Educational Institution by Ashika Maharaj
15:00 – 15:15	**AUD1** Factors leading to non-compliance of control activities within public service: Case of the Eastern Cape Department of Rural Development By Awonke Geqeza / Job Dubihlela	**SKI1** Do perceived accountancy skills of fast-moving consumer goods Small, Medium and Micro Enterprise employees influence the attainment of key financial objectives? by Juan-Pierré Bruwer / Tracy Beck	**ERET1** E-retailer customer satisfaction and loyalty: The effects of website design and security by Christine De Meyer-Heydenrych / Semona Pillay
15:20 – 15:35	**ACC1** Timeliness Reporting, Busy Accounting Period and Audit Pricing: Evidence from Nigeria Deposit Money Banks by John Ayoola / Lawrence Obokoh / John Inneh	**REC1** The influence of research collaboration and networking (RECON) on research productivity at an accredited South African tertiary education institution by Juan-Pierré Bruwer / Teneille Voke / Janice Hemmonsbey / Candice Livingstone / Chris Young / Andries de Beer / Ilanza Perold / Anton Nel / Frik de Beer	**LSP1** The impact of leadership styles on organizational performance: A case of the Masters of Business Administration at the University of KwaZulu-Natal by Bibi Chummun / Sandile Nzimande
15:40 – 15:55	**FIN1** Constraints and opportunities of farmer access to bank credit in Zimbabwe: a review by Blessing Chigunhah / Ezekia Svotwa / Gerald Munyoro	**STA1** Support staff experience in the effective functioning of universities: A co-creation perspective by Beate Stiehler-Mulder / Christine De Meyer-Heydenrych	**COO1** Dynamics of coopetitive interactions in the tourism industry: the case of SMEs in Luderitz by Selma Iipinge / Cynthia Kauami

DAY 1 (Monday, 2 September 2019) - continued		
TECHNICAL SESSION 3 --- ABSTRACT / FULL-PAPER		
Time	**Venue A**	**Venue B**
16:05 – 16:15	Loading of presentations	Loading of presentations
16:15 – 16:25	**HR1** The value of human resources management practices (HRMPs) on Small and Medium Enterprises (SMEs) performance: Insights from Zimbabwe by Collen Kajongwe	**TOU1** The Attributes of Success: Tourism-related Entrepreneurs in Mtubatuba Local Municipality, South Africa by Sibusiso Ntshangase / Ikechukwu Ezeuduji
16:30 – 16:45	**APP1** The role of apprenticeship training in the printing and packaging industry in South Africa by Michael Darko / Etienne Bester / Frederick Herbst	**ETE1** The use of e-technology in operational processes of organisations in Polokwane Municipality by Frances Ledwaba / Gert Pelser
16:50 – 17:00	**CONS2** Consumer perception of service quality at a selected bank in Cape Town by David Malila / Darlington Onojaefe	**TEP1** The Effect of Training on Employee Performance in the Namibian Town Councils: A Critical Evaluation of Oranjemund Town Council by Gideon Nangolo and Samuel Mensah
18:30 – 22:00	**Cocktail Dinner** **Dress core: Black Tie** Welcome address: David Namwandi (Chairperson / Founder of Namibia International University of Management). **Vote of Thanks:** Chux Iwu - Acting Asst. Dean: Research (FBMS)	

DAY 2 (Tuesday, 3 September 2019)		
Time	Event	
08:00 – 08:25	**Registration**	
08:30 – 09:40	**Keynote address 2**: Sakaria Nghikembua (Chief Executive Officer of AgriBank of Namibia)	
TECHNICAL SESSION 4 --- ABSTRACT / FULL-PAPER		
Time	**Venue A**	**Venue B**
09:40 – 09:50	Loading of presentations	Loading of presentations
09:50 – 10:05	**ELE1** Factors to improve the implementation of Electronic Health Records in primary health care facilities of South Africa by Liezel Cilliers / Sangudzayi Nyamanhare	**UBU1** The Cultural Influence of Ubuntu on Organisational Commitment in the Hospitality Sector by Thembisile Molose
10:10 – 10:25	**ROI1** Which psychographic variables influence the behaviour of the rooibos tea consumers to increase sales? by Liezel van Zyl / Corrie Uys / Norbert Haydam	**EMA1** Engineering a manager_ assessing the factors affecting the career transition by Ronnie Lotriet / MC Maree
10:30 – 10:45	**EXP1** Evaluating the experience of students as actors in a people intensive service delivery system by Beate Stiehler-Mulder / Marius Wait	**MAT1 (virtual)** Namibian High School Students' Attitudes towards Learning Mathematics by Shemunyenge Hamukwaya
10:50 – 11:05	**SHO1** Product characteristic determinants of South African showroomers' behaviour: A brick-and-click value perspective by Mariette Frazer / Ilse Struweg	**STAK1** A balancing act: Stakeholder enablement and empowerment towards multiple stakeholder engagement by Yolandi Botha
11:05 – 11:35	**Tea and coffee break**	

TECHNICAL SESSION 5 --- ABSTRACT / FULL-PAPER		
	Venue A	**Venue B**
11:35 – 11:45	Loading of presentations	Loading of presentations
11:45 – 12:00	**BRD1** Aaker versus Keller's models: much ado about branding by Pieter Steenkamp	**PRI1** Consumer purchase intention on private label brands (PLBs) in South African food retail category by Welcome Kupangwa / Hassan Mohamed
12:05 – 12:20	**ENTR1** Predicting entrepreneurial intentions from entrepreneurial self-efficacy and Entrepreneurs personal characteristics: A Botswana perspective by Douglas Svotwa / Mornay Roberts-Lombard / Olumide Jaiyeoba	**PIP1** 'Leaking pipeline' as experienced by African women in academic leadership within South Africa by Hazvineyi Saurombe / Yvonne du Plessis
12:15 – 12:40	**KNO2** Development of an information and knowledge management framework for a management firm in the fourth industrial revolution by Lucian de Koker / Tanya du Plessis	**MAC1** An enquiry into the management challenges of millennial employees within the hotel industry: A Case Study by Ronnie Lotriet / DB le Roux
12:45 – 13:00	**CRE1** Creativity as a critical skill: a case of Retail Business Management (RBM) students at a South African higher education institution by Eric van Zyl / Suzaan le Roux	**MTD1** Teasing the voice of top management team diversity from an interesting outlier perspective by Greenfield Mwakipesile / Marius Johannes
13:00 – 13:50	**Lunch**	

TECHNICAL SESSION 6 --- ABSTRACT / FULL-PAPER		
TECHNICAL SESSION 3 (FULL PAPERS)		
	Venue A	**Venue B**
13:50 – 14:00	Loading of presentations	Loading of presentations
14:00 – 14:15	**ENTR3** Family relationships and business performance of Small and Medium-sized family businesses: A case study of the Silulo Ulutho Technologies in Cape Town, South Africa by Mohamed Djemilou / Richard Shambare / Thembinkosi Maphosa	**CAR1** Practical guidelines for role players in the South African skin care industry: Demographic factors and consumer behaviour by Chantal Rootman / Nadine Oosthuizen / Brian Manuyana
14:20 – 14:35	**SDC1** Socio-demographic characteristics and satisfaction of occupational therapy patients at Katutura State Hospital, Namibia by Thelma Marwa / Samuel Mensah	**SOC2** An investigation into the perceived factors that will inhibit social media in the workplace in South African higher education sector by Liezel Cilliers / Kim Viljoen / Willie Chinyamurind
14:40 – 14:55	**WBM1** A futuristic whole brain model for the administrative professional by Anette Venter / Chux Iwu / Tessie Herbst	**FIN3** The Scope of National Strategy on Financial Literacy: A Conceptual Review of South African Perspectives. by Ravinder Rena / Ifeanyi Mbukanma / Hein Prinsloo
15:00 – 15:15	**CONS1** Incidental damage to a well-known trade mark and remedies for consumers: The case of the Ford Kuga by Mlungisi Tenza	**EMO1** Job engagement as a moderator of the relationship between occupational stress and emotional burnout among police officers in the Eastern Cape, South Africa by Mtutzeli Dywili
15:20 – 15:35	**SCR1** Sovereign credit rating and economic growth in Sub-Saharan Africa: a Granger Causality analysis by Virimai Mugobo	
18:00 – 22:00	**Gala Dinner and Best Paper Awards** **Dress code: Semi-formal or Cultural attire** **Vote of Thanks:** Juan-Pierre Bruwer (ICBMD Coordinator)	

APPENDIX D: COMPACT DISK (CD)

Cronbach's Alpha coefficients – refer to CD

Factor analysis – refer to CD

APPENDIX E: COMPACT DISK (CD)

Descriptive statistics – refer to CD