DESIGNING A MODIFIED JIGSAW COOPERATIVE LEARNING STRATEGY TO ENHANCE ACADEMIC PERFORMANCE OF BUSINESS EDUCATION STUDENTS AT A UNIVERSITY OF TECHNOLOGY

by

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submitted in accordance with the requirements for
the degree of

DOCTOR OF EDUCATION

in the subject

CURRICULUM AND INSTRUCTIONAL STUDIES

at the

UNIVERSITY OF SOUTH AFRICA

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June 2022

DECLARATION

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Designing a modified JIGSAW cooperative learning strategy to enhance academic performance of business education students at a university of technology.

I declare that the above thesis is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

I further declare that I submitted the thesis to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

August 2022

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SIGNATURE   DATE

DEDICATION

To my late parents, Joshua Nakedi Mogashoa and Lillian Wireless Mogashoa (nee Magagane),

God could not have given me a better gift than you.
Your trust in my capabilities, the support and encouragement in my youth whilst you were in the land of the living made me to make you proud as my angelic beings.

I love you both.

ACKNOWLEDGEMENTS

ABSTRACT

Student academic performance is one of the fundamental objectives of any educational institution whose core vision is to create a harmonious community conducive to applied research, teaching and learning. Academic success at the tertiary level is a multidimensional phenomenon that embraces languages proficiency, learning and study strategies and personal characteristics that could be achieved students get accustomed to alternate learning approaches particularly Jigsaw cooperative learning so that they become skilled lifelong students. Failure and setbacks towards academic performance of Business Education students at a university of technology necessitated this research. The aim of this study was to investigate how Jigsaw, as a teaching and learning strategy, enhances the teaching and learning of Business Education students through a review of the literature on Jigsaw cooperative learning and teaching and learning. For a rich and deepened insights into this study, a mixed methods approach guided the research which proceeds from the post-positivist-constructivist paradigm (pragmatic research design). A pre- and post-test supported the Jigsaw intervention implemented with Business Education class groups. Students completed a four-point Likert scale questionnaire relating to their experiences of learning before the intervention and as a result of it. Focus group discussion were also conducted to support the questionnaire findings. The findings indicated that there is a relationship between a teaching method and students' academic performance as well as operating within a developmental learning paradigm which has a positive effect on student learning outcome. The Jigsaw cooperative learning strategy played an important role in improving student participation and their academic performance thereby improving students' accountability, academic interest, self-efficacy beliefs, critical thinking skills, cooperative learning, academic responsibility, motivation, social skills and goal orientated. Nevertheless, Business Education students recommended that additional time, adequate learning materials, prompt and understandable feedback is necessary for greater achievement towards their studies. The review of the literature, and the findings of the empirical research form the basis for designing a modified Jigsaw

cooperative learning framework for the teaching of Business Education in higher education institutions.

Key terms:

Cooperative learning; Jigsaw cooperative learning strategy, academic performance; Business Education; self-efficacy; goal orientated; social skills.

LIST OF ACRONYMS

BEd.	Bachelor of Education
BMF	Business Management: FET Methodology
C&C	Co-Action and Co-Labour
CC	Creative Conflict
CI	Complex Instruction
CIRC	Cooperative Integrated Reading and Composition
CL	Cooperative learning
DEC	Dyadic Essay Confrontation
DHET	Department of Higher Education and Training
DOLS	Department of Language and Social Sciences
EMS	Economic and Management Science
FET	Further Education and Training
GI	Group Investigation
GP	Group Processing
HEIs	Higher Education Institutions
HEQC	Higher Education Qualifications Framework
IA	Individual Accountability
LT	Learning Together
MRTEQ	Minimum Requirements for Teacher Education Qualifications.
NSE	Norms and Standards for Educator
PI	Positive Interdependence
RPT	Reciprocal Peer Tutoring
SAQA	South African Qualifications Framework
SP	Senior Phase
SPSS	Statistical Package for Social Sciences
SSD	Scripted Student Dyads

STAD	Student Team Achievement Divisions
STP	Student Team Project
TAI	Team Accelerated Instruction
TGT	Teams' Games Tournaments
ZPD	Zone Of Proximal Development

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CHAPTER 1

ORIENTATION OF THE STUDY

1.1   INTRODUCTION TO THE STUDY

In partnership with the Department of Higher Education and Training (DHET), South African universities seek to admit underprivileged students from a variety of cultures and backgrounds to undergraduate programmes. The university of technology under study incorporates this mission through accepting a vast number of matric (Grade 12) graduates and assists these new entrants with financial assistance such as bursaries and education loans offered by the government. The Bachelor of Education (BEd: SP and FET) degree with a specialisation in Economic and Management Science (EMS) programme within the Department of Language and Social Sciences (DOLS) at the university of technology, experiences late applications from first year students who seem to have been interested in enrolling for other courses with a teaching career being the last option. Van der Meer, Jansen and Torenbeek (2010) query whether these late responders and undergraduate students are expected to adapt into universities, or should universities adapt to the students who access the universities? Lecturers within the department, the researcher being one of them, have noted that only a minority of students are passionate about the vocation of teaching and display a willingness to bring change to the South African education system. Van der Meer *et al.* (2010) further concur that the burden and responsibility has shifted to and lies with the university and lecturers to respond to the problematic nature of the transition process and the issue of students pursuing a course that is of no relevance to the majority admitted.

However, in Finland, entry into teacher education programmes is highly selective (Reimer & Dorf, 2014: 666) hence the education system takes a different approach to student teachers by head-hunting the top students from schools to enrol in the teacher education programmes by offering them lucrative bursaries and other study incentives. Such high performing students are deemed too valuable in motivating learners that they train to proceed to different careers after high school (Federick, 2020:23). In contrast, the Republic of South Africa has been experiencing a decline in the pass rate

of matriculants which has resulted in access into the BEd. (SP and FET) Teaching (EMS) programmes being compromised. Lecturers are thus faced with students who are not well-equipped with the relevant foundational knowledge.

1.2   THE RESEARCH PROBLEM

One of the essential goals of any educational institution whose core mission is to build a community that is supportive of applied research, teaching, and learning is to improve student academic performance. At the tertiary level, academic achievement is a multifaceted phenomenon that includes language competency, learning and study techniques, as well as individual traits like motivation, communication, time management, and grades. The transition from schooling and university is challenging; however, academic success could be achieved for Business Education students with the application of a variety of learning approaches especially cooperative learning (Oriogu, Subair & Oriogu-Ogbuiyi, 2017). According to Salas-Velasco (2019), institutions should be equipped with targeted interventions and support services to fulfil the requirements of at-risk students in order to affect their academic performance. This would maximize student retention while also upholding standards.

Raising the academic standards for admission to university may not be the best strategy for reducing the number of dropouts or students falling behind, but the outcomes of first-year exams can be used to enhance the prediction of non-completion. The first-year academic performance turns out to be the best predictor of second- and third-year retention, contrary to what American colleges had previously believed. Entry exam scores and high school grades had been considered as indicators of academic ability. The implementation of active learning tactics in the classroom, according to Abíoa *et al.* (2017), promotes students to actively participate in the learning process, especially those who encounter some academic difficulty and must retake a course at any point in their degree program.

Dropping out or finishing in longer than the required time is predicted by poor academic performance in higher education institutions (HEIs). The list of factors that result in poor academic performance are broad and comprehensive. Kotzé and Massyn (2019) established the three kinds of criteria for success or failure to complete a programme.

The first component is institutional and includes things like the institution's setting, the lecturers' methods of instruction, the standard of the course materials, the types of evaluations used, and management procedures. Situational factors include peer support, economics, and family obligations as the second element. The third category is personal characteristics like self-efficacy, self-directedness, and confidence. University students' academic performance may also be impacted by additional variables such parental divorce, depression, and sleep difficulties. Students who lack the skills and learning habits necessary to function well in the educational context underperform, as noted by Abíoa *et al.* (2017), because their knowledge background hinders their ability to learn. However, because HEIs are typically supported by public funding in most nations, students prefer them to schools of vocational training. Public HEIs in Spain, for instance, rely substantially on funding from regional governments. In 2013, the regional budgets provided 78.22% of the structural funding for public institutions, with tuition fees covering the remaining 21.78%. (Salas-Velasco, 2019).

There were not enough teachers who were trained to teach Economic and Management Science (EMS) when it was introduced as a curriculum in South African schools in 2012. As a result, it became necessary for teachers who had a specialty in either accounting, business economics, or economics to teach EMS in the Senior Phase. The issue was that EMS demands lecturers to be educated in all the many disciplines contained in the learning area, however these teachers were rarely prepared to teach all areas of the learning area and preferred to focus more on their area of specialization. Ndlovu (2011) reports that teachers are in need of support with the content with teachers themselves voicing their concerns about inadequate training and support. To a greater extent, teachers greatly influence learners' choice for tertiary studies (Rossouw & Greeff 2020). Regardless, of the challenges in the school learning environment, it is for the higher learning institutions to address the challenges that are passed on to the university system (Oriogu *et al.*, 2017) bearing in mind that the same students, as pre-service teachers, on completion, will be employed by the same schools in the South African community.

The academic performance of Business Education, in the BEd. (SP & FET) Teaching (EMS Programme) at the university of technology is of concern as it is among the

underperforming subjects. Since many of the subjects addressed at the first-year level are taught in the school curriculum, this subpar academic performance was mostly unexpected. The call should be to find solutions to solve the under preparedness of the current students and enhance learning methods rather than criticising the execution of the South African educational system. Poor academic performance becomes a concern during the first year of study, forcing some students to repeat the course and maybe risking expulsion from both their studies and the university.

I taught Business Education for ten (10) years, from 2007-2020 with experienced and qualified lecturers. A new lecturer was appointed in 2011 to co-facilitate the subject and he was in the position for three (3) years until 2013. The Head of Department then appointed another lecturer who assisted with Business Education and address the yearly outcome of the subject. I was reappointed to facilitate a class of first year students who have needed to repeat this subject. To identify the reasons for such poor performance (see Table 1.1), several lecturers appointed to lecture Business Education in the last four years were scrutinised by the departmental managers.

Table 1.0.1: Business Education Pass rate 2014-2018

	Final Mark				
Year	**2014**	**2015**	**2016**	**2017**	**2018**
Achievement (%)	53	41	48	44	45

(Source: Report from university administration, 2019)

With reference to Table 1.1, it seems evident that students who are admitted to the BEd. (SP & FET) EMS programme should have a prerequisite of 50% pass in Grade 12 before being accepted into Business Education. It can be deduced that those students are perceived to have completed their matric and have a full background of EMS upon which the higher education depends on and should thus perform better in Business Education. Emanating from the academic results, as revealed in Table 1.1, this is the opposite and there needs to be further investigation into why these students still perform poorly. The main concern is:

- Is there a problem with Business Education lecturers in how they teach (pedagogical content knowledge)?
- Do Business Education students enrolled for the subject lack subject content knowledge to perform academically well?

Based on the aforementioned scenario, the researcher seeks to explore how the Jigsaw teaching strategy can be used as a cooperative learning strategy in teaching Business Education to enhance the academic performance of pre-service teachers at a university of technology.

1.3   THEORETICAL FRAMEWORK OF THE STUDY

The study is guided by the constructivist and social constructivist theories advanced by Lev Semyonovich Vygotsky (1896-1934). According to Feeney and Meyers (2016), constructivism refers to how an individual makes sense of new information. This explains why students have different learning styles and require different methods of instruction. Students who are introduced to new concepts or skills rely on previous experiences to connect the new with the known. Students in constructivist classes can collaborate with others while discussing real-world issues and their own experiences. Constructivism is described by Amineh and Asl (2015) as a synthesis of various theories condensed into a single form. It combines both behavioural and cognitive principles. Constructivist's view learning in this context as a process of creating meaning and the means by which students do so. Constructivism can be used to examine students' comprehension, development, and thinking levels. In a similar vein, Bada and Olusegun (2015) characterize constructivism as a theory that is based on scientific research and observation since it is concerned with how individuals learn. Students build their own knowledge and comprehension of the classroom environment in this situation, reflecting on their experiences as a result.

According to constructivists, children can only learn when they relate new information to previously acquired understanding, connecting their prior knowledge to the new information and experiences in the learning environment. When students learn, they shape their existing understanding, making the current state of knowledge temporary

(Vu Thu Hang, Meijer, Bulte & Pilot, 2015). Vygotsky believed that learning occurs best when students help each other and have the internal desire to learn (Vu Thu Hang *et al.*, 2015). Vygotsky understood education as a social activity where meaning is created through interaction with others and conversation (Barker, Quennerstedt & Annerstedt, 2015; Mishra, 2014).

In a social constructivist classroom, students are encouraged to participate actively in their own learning process (Vu Thu Hang *et al.*, 2015). The lecturers' role is to ensure that participation takes place by allocating meaningful tasks with clear instructions and internalising the tools of practice (Gaytan, 2013). According to Liu and Chen (2010), students should go through a cycle of questioning, evaluating, and analysing information, developing concepts, and integrating new understandings with prior experiences. By asking insightful questions and crafting original summaries of concepts, for example, students can demonstrate their learning and knowledge in a variety of ways.

The aim of constructivist learning is to promote reasoning, critical thinking, knowledge understanding and application, self-control, and conscious reflection (Kwan & Wong, 2015). From this perspective, the Business Education lecturer should inspire students to be independent and self-motivated in order to fulfil their academic objectives.

In social interdependence theory, students are regarded as reflective beings, who can think and reflect on their lived experiences (Mishra, 2014); therefore, groups comprising students from different backgrounds, races and gender are most likely to produce the best results (Vu Thu Hang *et al.*, 2015). Student collaboration is achieved through teamwork, which is chosen as a learning technique. Teamwork provides students with significant social and emotional support, enabling them to take risks and create ownership (Vu Thu Hang *et al.*, 2015).

These opinions suggest that designing a Jigsaw learning strategy for Business Education students might bring positive results. Social interactions help students express their ideas clearly and foster a supportive learning environment that gives them the chance to defend, contrast, and justify their ideas with those of other

students. Among other reasons, students get the opportunity to include those concepts into their explanatory framework (Koc, Doymus, Karacop & Simsek, 2010).

Humans, being social beings, achieve specific goals through expressing their abilities, thoughts, and feelings (Sahin, 2010). As a result, when they interact with one another, students have the chance to learn about perspectives that are different from their own. By encouraging group work, group discussions, class debates, and other types of cooperative learning, Business Education lecturers can give their students the chance to learn from one another in groups. Jigsaw is a cooperative learning technique that blends well with constructivist methodologies and appears in curriculum models for knowledge (Barker *et al.*, 2015:410).

Albert Bandura's (1977, 1978, and 1986) work is largely responsible for the development of social cognition theory, which places an emphasis on how social behaviours are learned and how learning takes place in a social setting where much is learned by observation. In this regard, students are perceived as self-regulators, who may observe peers performing a particular behaviour, the consequence of that behaviour and then reflect on the outcome which will guide future behaviours. The subsequent consequences have an impact on motivation; for instance, if a peer is awarded or reprimanded for a certain behaviour, the individual may decide to repeat or refrain from that behaviour in the future (Swearer, Wang, Berry & Myers, 2014).

According to Wentzel (2015), social contacts can have a significant impact on student behaviour at universities, which may include learning how to connect well with others. Effective social connections will therefore have a favourable impact on students' academic progress and psychological wellbeing when they are exposed to them in educational environments. As observed by Seven, Bagcivan, Kilic, and Acikel (2012), learning is a process that involves ongoing, lasting change in people's attitudes, which can happen either through repetition or experience. For instance, during the learning process, students gain knowledge, skills, attitudes and values although this differs amongst individuals (Polat, Peker, Ozpeynirci & Duman 2015).

Despite having the ability to choose how they will let internal and external circumstances to affect their future behaviour, Bandura (1978) contends that people are not entirely free to determine what influences their behaviour (Burnett, Smith & Wessel 2016). The way that students learn, in particular, may be influenced by their interactions with lecturers in the classroom. According to Smart and Marshall (2013), certain facets of classroom instructional techniques have been linked to student outcomes like achievement, motivation, and efficacy in educational institutions. However, Dweck (2015) argues that, students' personal beliefs and perceptions of the classroom environment can also have an impact on learning. Dweck believes that students' mindsets have an impact on their behaviour and achievement.

There are two different mindsets among people when describing intellect and ability, according to Carol Dweck (2010), a psychology professor at Stanford University who is cited by Pride (2014). Students that are described as having a fixed mindset have an ability that is inherent and natural, with giftedness as a contributing factor, whereas students with a growth mindset see their achievement as something that can be achieved over time with effort. While students with a growth mindset are more focused on learning than grades, they enjoy challenges and work diligently on challenging tasks to advance their skills, in contrast to students with a fixed mindset who are overly preoccupied with grades, fear obstacles, and give up easily (Dweck, 2015).

Researchers have discovered that learning causes new connections to form between neurons, strengthening of existing connections, and destruction of unused connections (Dweck, 2015). The more students work their brains, the smarter they become and they are guaranteed of success. Pride (2014) claims that by giving students more engaging learning assignments, development attitude can be encouraged among all students. This can be used in Business Education, where overcoming obstacles is a given. However, if students are not given examples of people who have overcome obstacles, they may never realize that even the brightest people have had to put in a lot of effort to gain their skills (Pride, 2014). According to Dweck's (2015) research, it is essential to teach students and lecturers about mindset, the functioning of the brain, and the risks associated with labelling others.

The importance of one's beliefs in carrying out a behaviour to get intended results is highlighted by teacher self-efficacy (Bandura, 1977). Self-efficacy is defined as "the belief in one's skills to organize and carry out the actions required to manage upcoming situations" by Bandura (1995), as cited by Lekhu (2013:10). Self-efficacy, as pointed out by Yildrim (2014), depends on whether one perceives oneself to have the ability to perform using one's skills. It is a belief that may be used to explain lecturers' actions towards executing teaching activities and it can be used to make significant contributions to understanding and improving lecturers' behaviour. According to Eroglu and Huseyin (2015), lecturers who exhibit high levels of self-efficacy are more skilled and effective at resolving issues that may arise during the teaching and learning process.

In a classroom setting, self-efficacy points to both the lecturer and Business Education students. This includes, among other things, the ability of the lecturer to assess his abilities favourably toward the Business Education course, the efficient use of Jigsaw to organize classroom activities, and the degree to which students can adopt the teaching and learning strategies with a positive outlook. Despite the fact that a lecturer serves as a leader in the classroom, the self-efficacy assumption should apply to both the lecturer and the Business Education students.

According to Ong (2015), a good leader must never assume that there is no hope for outstanding performance in Business Education; he must constantly find ways that enhance the learning of a particular group of students. Yildirim (2014) believes that lecturers' perceptions about self-competencies predict their competency in teaching. Teacher self-efficacy motivates and encourages students by providing a promotive learning environment towards students' success (Sezgin & Erdogan, 2015).

1.4   RESEARCH QUESTIONS

The main research question for this study is: *What features can guide the design of a modified Jigsaw cooperative learning strategy than can enhance academic performance of Business Education students at a University of Technology?*

Based on the above main research question, the following research questions were identified for investigation:

1. How does Jigsaw as a teaching and learning strategy, enhance the teaching and learning of Business Education?

2. Which principles of Jigsaw are prone to improve the teaching and learning of Business Education students?

3. What significant difference is found in the performance of Business Education students before and after being exposed to Jigsaw?

4. Do students using Jigsaw, as a cooperative learning approach
   - display high levels of achievement,
   - become goal oriented,
   - develop greater positive self-efficacy beliefs regarding their abilities in Business Education?

1.5   AIM AND OBJECTIVES OF THE STUDY

The aim of the study is to aim investigate how Jigsaw as a teaching and learning strategy enhances the teaching and learning of Business Education to enhance academic performance of Business Education students at a university of technology. The researcher chose to use Jigsaw as a cooperative learning technique as it fosters a deeper understanding of the learning content. As for the researcher, a novice in cooperative learning, it would be comfortable for the researcher to learn and implement Jigsaw in a Business Education class (Slavin, 1980). Based on the problem statement, the researcher decided to identify whether there is a significant difference in the performance of Business Education students before and after being exposed to Jigsaw and to determine if any students exposed to Jigsaw and displayed high levels of achievement, were goal oriented and had greater self-efficacy beliefs regarding their abilities in Business Education.

In order to achieve the above overall aim of this study, the following specific objectives were formulated for the purpose of conducting this investigation:

1. To investigate how Jigsaw as a teaching and learning strategy enhances the teaching and learning of Business Education.

2. To investigate which principles of Jigsaw are prone to improve the teaching and learning of Business Education students.

3. To measure whether there is significant difference in the performance of Business Education students before and after being exposed to Jigsaw.

4. To determine if any students exposed to Jigsaw, as a cooperative learning approach

   - display high levels of achievement,
   - become goal oriented,
   - develop greater positive self-efficacy beliefs regarding their abilities in Business Education.

1.6   A REVIEW OF THE LITERATURE

Relevant literature from primary and secondary sources were consulted. The primary sources developed by DHET include Academic Policy for Policy for Programmes and Qualifications in Higher Education, Language policy framework for South African Higher Education, Teacher Education and Development in South Africa, and the DHET Student Attendance and Punctuality Policy. Secondary sources such as books, scholarly articles for DHET Teaching and learning policy, research journals, research reports, internet searches and relevant official and national provincial Department of Education policy documents (*cf.* Chapter 2).

In the literature review, the theories that underpin the study were reviewed as well as the nature and the field of study Business Education in higher learning were outlined. The theories that underpin the study were reviewed. The nature cooperative learning approach was discussed – Jigsaw as a cooperative teaching and learning strategy and the design of the use of and modification of Jigsaw for use in Business Education (*cf.* Chapters 3 and 4).

1.7   RESEARCH METHODOLOGY AND DESIGN

This section gives a brief description of the research methodology used in the research, which is elaborated on in Chapter 5.

1.7.1   Research Paradigm

This doctoral study proceeds from pragmatic paradigm. The rationale for choosing this paradigm is to enable the researcher to identify and explore the features/components

of essence to design a modified Jigsaw cooperative learning strategy to enhance academic performance of Business Education students at a university of technology. The pragmatic paradigm is problem-centred, real-world orientated and uses multiple methods of data collection, both qualitative and quantitative and is aware of the importance of conducting research that best addresses the research problem. The paradigm is the foundation of modern social science which uses both quantitative and qualitative methods where methods are matched to the specific questions.

1.7.2   Research Design

Research design refers to the blueprint for the collection, measurement and analysis of data (Cooper & Schindler, 2008). It is a plan that describes the conditions and procedures for collecting and analysing data (McMillan & Schumacher, 2014). Punch (2011 as cited by Van Wyk and Taole, 2015) describes research design as a plan of action in which the researcher intends to communicate about the framework for the study. The plan consists of four main ideas which are the strategy, the conceptual framework, the question of what will be studied and the tools and the procedures for collecting and analysing empirical materials.

1.7.3   Research Methods

The word "method" refers to the strategy the researcher chooses to take when collecting and analysing the data. The methods used to gather and analyse data are referred to as methodology, on the other hand (Babbie, 2013; McMillan & Schumacher, 2014).

To obtain a thorough knowledge of the subject, the researcher chose a mixed methods strategy that combined focus group and survey techniques. The post-positivist-constructivist paradigm (pragmatic research design), which is also a fusion of the positivist and constructivist paradigms, forms the foundation of the mixed methodologies approach. This methodology aims to have a broader perspective on the topic being studied.

In mixed methods research, a researcher combines aspects of qualitative and quantitative approaches, for example, by using qualitative and quantitative viewpoints, data collection, analysis, and inference techniques for the purposes of depth and

breadth of understanding, as well as for corroboration (Van Wyk & Taole, 2015). In a single study or program of inquiry, the investigator "collects and evaluates data, integrates the findings, and draws inferences using both qualitative and quantitative techniques or methodologies." This is known as a mixed methods approach (Tashakkori & Creswell, 2007). For the objective of this study, the researcher used a mixed methods design since it is helpful to capture the best aspects of both quantitative and qualitative approaches. As a result, researchers who have access to both quantitative and qualitative approaches are better able to understand the world than those who are only able to use one methodology (Creswell, 2003).

Since the study involves exploring and understanding the significant difference of Jigsaw as a teaching and learning strategy in Business Education, the researcher used a mixed methods approach to elicit an in-depth understanding of the complexities of the course encountered by Business Education students which result in poor performance Using this design, enabled the researcher to evaluate objective data consisting of numbers to exclude bias using questionnaires and to obtain in-depth data by conducting interviews. These two data collection instruments were used in conjunction with a Jigsaw cooperative learning intervention supported by a pre- and post-test The research design findings are used to design a modified Jigsaw cooperative learning strategy to enhance academic performance of Business Education students. The methodology is discussed in detail in Chapter 5.

1.7.4   Population and Sampling

The target population in this study were students registered for the Bachelor of Education degree called BEd. (SP & FET) Teaching at a university of technology. According to McMillan and Schumacher (2014), population refers to a group of individuals from which a sample is drawn, and results are generalised. It includes respondent and/or participants with characteristics which could assist the researcher in developing an understanding of the phenomena under study.

Sampling is the process of choosing participants for a research study from the study population (Babbie, 2013). According to McMillan and Schumacher (2014), the researcher employed intentional sampling to choose the study sample, which permits selecting small groups of individuals who are aware and insightful about business

education without the need for generalisation. The researcher, a Business Education lecturer, was allocated students of which a two class groups constituted the sample of about +- 60 students.

1.7.5   Research Instruments

Data was collected and analysed using the mixed methods approach. In this case, a structured questionnaire in the form of a 4-point Likert scale was used to collect data for the quantitative phase. The questionnaire was designed using the information gathered from the literature, regarding the above-mentioned aspects. The focus was on running frequencies and cross tabulations of elicited responses by making use of the Statistical Package for Social Sciences (SPSS) version 25.

Focus group interviews were conducted with Business Education students on site to determine if any students exposed to modified Jigsaw, as a cooperative learning approach, displayed a different mindset, displayed high levels of achievement, were goal oriented, and had greater positive self-efficacy beliefs regarding their abilities in Business Education. These divergent data collection techniques established triangulation of the analysis of results to ensure validity and reliability of the research findings.

1.7.6   Data Analysis

Descriptive statistics were used to measure whether there was significant difference in the performance of Business Education before and after being exposed to modified Jigsaw (see Chapter 5, Section 5.5.1).

Qualitative data was analysed using inductive methodologies, such as determining categories, themes and sub-categories that emerged from the data and a constant comparison method of grounded theory was used for analysing group interview data. (*cf*. Chapter 5; Section 5.5.1).

1.8   RESEARCH VALIDITY AND RELIABILITY

Validity is a measure of how successfully a measuring instrument carries out its intended purpose by determining if it measures the behaviour or quality that it is meant to measure. Although they are closely connected, validity and reliability indicate

separate aspects of the measuring device. Most of the time, a measuring device can be accurate without being valid, but if it is valid, it is also most likely to be accurate. On one hand, validity may not always be guaranteed by dependability alone. A test may not precisely represent the expected behaviour even though it is trustworthy (Sürücü, & Maslakç, 2020). Hence, in this study, the researcher tested both the validity and reliability of the measuring instrument to simplify the interpretation of the research findings

According to Gay, Mills and Airasian (2011), dependability is the consistency with which a test yields findings that are comparable. Reliability in qualitative research relates to the validity and precision of data collection methods. On a similar note, Sürücü and Maslakç (2020) define dependability as the consistency and stability throughout time of the utilized measurement device. In other words, the capacity of tools to have comparable effects when used at various periods. In general, maintaining a research project's credibility depends on the validity and dependability of the study (Awang, Muhammad & Sinnaduai, 2012).

1.8.1 Quantitative research data as valid and reliable

There are three different kinds of validity: face validity, content validity, and criteria validity (Maree & Pietersen, 2010). To guarantee that the research questionnaire fully addressed all of the study's many characteristics and met the criteria for various sorts of validity, a pilot study was conducted with a sample of respondents from the target demographic.

When an instrument is used repeatedly or given to various people drawn from the same population and the results are the same, it is said to be reliable. Therefore, the consistency and repeatability of an instrument are measured by its reliability. There are several forms of dependability, including internal reliability, test to re-test reliability, equivalent form reliability, and split-half reliability (Maree & Pietersen, 2009). The reliability test was performed on the questionnaire, used the Cronbach Alpha coefficient and the reliability test showed as acceptable reliable at $\alpha < 0.81$ (see Table 5.1).

1.8.2   Qualitative research data as trustworthy

Every study is prone to both systematic and random errors. Qualitative validity means that the researcher confirms whether qualitative data accurately gauge what needs to be measured (Gay *et al.,* 2011). To describe validity, the findings should be trustworthy, credible, transferable, dependable, confirmable and understanding (*cf.* Trustworthiness Chapter 5, Section 5.2.1)

Qualitative researchers encounter validity threats that could lead to invalid conclusions. The two broad types of threats to validity in relation to qualitative studies are research bias and reactivity. Furthermore, the two threats to the validity of qualitative conclusions are the selection of data that fit the researcher's existing theory, goals or preconceptions and the selection of data that stand out to the researcher (Maxwell, 2013).

Maxwell (2013) states that validity is the process of ruling out validity threats and increasing the credibility of conclusions. An extensive checklist can be found in Becker (1970), Kidder (1981), Lincoln and Guba (1985) and Patton (1990). The fundamental process in all these tests is looking for evidence that could challenge research conclusions or that refers to the plausibility of the potential threats. According to Creswell (2003), three primary forms can be used by qualitative researchers, and they are triangulation, member checking and auditing. Creswell and Plano Clark (2007) stated that in qualitative research, validity comes from the analysis of the researcher and from information obtained from participants. Member checking as was used in this study, is another process for assessing qualitative validity, in which the researcher asks more than one participant with the purpose of confirming the accuracy of the narratives. In this study, a pilot study was conducted with the participants possessing the same characteristics as those of the main investigation to be involved in the study to determine whether the relevant data could be obtained from the participants.

1.9   ETHICAL CONSIDERATIONS

It is essential that data collection methods be consistent with ethical principles. The students must know the nature of study and be willing participants in it (this is informed consent), any data collected should be traceable back to particular individuals (thus

maintaining participant's right to privacy), respect for participant's rights and dignity and autonomy. One common way of keeping personal data confidential is to assign various pseudonyms to different participants and to use those pseudonyms both during data collection and in the final research report (*cf.* Chapter 4, Section 4.5).

According to Leedy and Ormrod (2014) and Bless, Higson-Smith and Sithole (2017), ethical clearance needs to be given and this was granted by the University of South Africa (UNISA) (Appendix A) and Central University of Technology (CUT) (Appendix B). Information sheets attached to each questionnaire, explaining the purpose of research were given to students and the informed consent process was also part of ethical practice (see Appendix C). Appointments were made for interviewing and permission was obtained from the participants (see Appendix D), thus obtaining informed consent. The interviewer ascertained that the consent of the participants was voluntary and informed. In addition, the transcription of the interviews was done in an ethical manner, taking care that these were only used for the purposes of this research.

The researcher also made sure that the collected data was not used to the detriment of those involved in the research project, instead data was only used to inform this study in an anonymous manner.

1.10   DEFINITION OF TERMS

1.10.1   Cooperative Learning

Doymus, Karacop and Simsek (2010) state that cooperative learning means students forming small groups towards a common goal of learning a subject matter either to solve a problem or perform a task by way of collective working. In this case, students with different cultures, experiences and learning modes get together to achieve success towards a common goal by establishing proper communication and taking the responsibility of each other's learning processes. Van Wyk and Alexander (2012) view cooperative learning as a philosophical and practical approach to changing the classroom, classroom processes and learning activities. They further maintain lecturers should use cooperative learning as an instrument to involve students in their own learning, and as a method of promoting social interaction skills amongst students. Oludipe and Awokoy (2010 in support of Van Wyk and Alexander, 2012) add that cooperative learning allows active participation of students in the learning process

which offers an opportunity to have control over their learning and leads to improvement in their learning and retention as both focus on the developmental and cognitive theoretical bases.

1.10.2   Jigsaw as a Teaching and Learning Strategy

The prospects of using Jigsaw as a teaching and learning strategy in universities should be considered an idealist venture, as lecturers struggle to come to terms with large classes filled with students accessing a variety of subject curriculum (Nel, Nel, & Hugo, 2012). According to Sahin (2010), Jigsaw is one of the 'pure' cooperative learning techniques which is based on group dynamics and social interactions.

In application of the Jigsaw technique, students separate from their home groups and form new groups with the other students who are responsible for preparing the same topics. These groups of experts try to make other students understand the topic; make plans about how they can teach the topic to their friends and prepare a report (Sahin, 2010:778). In this exercise, students assist each other's learning by becoming the teachers; however, it requires communication and careful listening (Gocer, 2010).

Jigsaw was first designed by Aronson in 1978 with the aim of reducing racial conflict and promoting positive relationships across ethnic boundaries (Lom 2012). Oludipe and Awokoy (2010) argue that the Aronson version of Jigsaw does not meet Slavin's Jigsaw II developed in 1986 in terms of its effective requirements. Both versions are handled in a similar fashion when an expert group enlightens peers about the subject matter, but it differs in that Jigsaw II requires students to be assessed individually in order to accumulate team scores based on each students' test performance.

Van Wyk (2012) observed that gathering students in groups does not guarantee that they will work together. He recommends that the facilitator should incorporate the following elements such as positive interdependency, group interaction, individual learning performance and interpersonal and small group skills. Even though lecturers are experts of the content for a particular course (Van Wyk, 2015), implementing a social constructivist classroom could appeal to Business Education lecturers to mediate and structure peer interaction amongst students which could ensure that students promote deeper learning and social interactions amongst students and

achieve the expected outcomes of a particular lesson. However, the lecturer should be available for questions, and guidance as required (Lom, 2012)

Lom (2012) explains that Jigsaw has long been used as a cooperative and collaborative learning strategy at all levels of education. In general, cooperative learning was established as a promising instructional innovation to develop or increase mental capacity by educational experience, promoting educational excellence regardless of class, race and gender (Koc *et al.,* 2010:53, Van Wyk & Alexander 2012).

1.11 VALUE OF THE STUDY

The study could contribute to the body of knowledge through the design of a modified or improved Jigsaw cooperative learning strategy at institutions of higher learning. Universities will discover the importance and benefits that come with using the Jigsaw cooperative learning strategy in classrooms.

Secondly, this practice could contribute to the teaching profession by offering a more effective experience and discovery of Business Education and Jigsaw, to lecturers and students, towards achieving good academic performance.

Thirdly, this research could make recommendations towards equipping lecturers in the Jigsaw approach as the South African curriculum encourages cooperative learning.

1.12 DEMARCATION OF THE FIELD OF STUDY

The study falls within the field of Curriculum studies which, inter alia, embraces the teaching and learning of Business Education. The study focused on Jigsaw as a cooperative teaching and learning strategy at a higher learning institution. The focal point was on the aspects of teaching and learning, not on the content of Business Education. The content of Business Education corroborated with the theories in this research. Only students registered for BEd. (SP & FET) Teaching, enrolled for Business Education participated in this study. The size of the sample made it impossible for generalisation of the results of Business Education students at a university of technology and other geographical areas in South Africa.

1.13 CHAPTER DIVISION

This thesis is divided into eight chapters.

Chapter 1 provided the introduction to the study, background rationale, problem statement, aims and objectives of the study and the research questions that guided the study.

Chapter 2 delves into various theories that foreground cooperative learning while Chapter 3 reviews the literature on cooperative learning as a learner-centred approach to teaching and learning. Chapter 4 is the ultimate literature review chapter, and it takes a critical lens to Jigsaw as a cooperative teaching strategy for Business Education.

Chapter 5 presents the methodology that was used to carry out research. Specifically, the approach, design, instruments, sampling procedures as well as data collection and analysis methods. Chapter 6 provides an analysis and interpretation of the results from the data that has been collected and collated from the field and Chapter 7 provides the summary, conclusion, recommendations and implications for further studies.

Chapter 8, the final chapter, presents a framework for the use of a modified Jigsaw cooperative learning design in Business Education in Higher education institutions.

1.14   CONCLUSION

In this chapter, the researcher focused on introducing the background that influenced the commencement of the study. Furthermore, the problem investigated was discussed and research methodology and terms of reference have been defined.

Chapter 2 in the study focuses on unfolding the theoretical framework that governed the inquiry. Different theories are discussed and explained as to how they relate to the investigation.

CHAPTER 2

THEORETICAL FRAMEWORK UNDERPINNING THE STUDY

2.1   INTRODUCTION

In the previous chapter, the researcher introduced the background and the aim of the study, citing the procedures including the research problem and questions and the research methods. The theories that support the study are discussed in this chapter and are broken down to demonstrate their applicability, relevance, and implications for the investigation. Theoretical framework, according to Du Plessis (2020), is a group of interconnected ideas that direct the study. The constructivist learning theory proposed by Lev Vygotsky (1896–1934) and Jean Piaget (1896–1980) serves as the theoretical framework for this study. This framework draws from a variety of learning theories, each of which has unique insights that have informed this research. Motivational theories related to this study namely, self-efficacy and goal-oriented theory are discussed in detail and finally, this chapter also looks into the methods of teaching and learning referred to as teacher-directed methods and learner-centred methods.

2.2   CONSTRUCTIVISM AS A THEORETICAL FRAMEWORK UNDERPINNING THE STUDY

The commonly recognized constructivism tenets are that learning is active, knowledge is socially built, and students build knowledge in connection to what they already know, according to MacPhail, Tannehill, and Karp (2013). (Holt-Reynolds, 2000). In classrooms designed as learning communities, where learning takes place through peer contact, collaboration, and student ownership of educational experiences, the methodology promotes knowledge built by students.

The constructivist theory consists of the following three components rather than being a single idea:

a. A group of epistemological convictions. These are opinions about reality's nature and the existence of a separate reality.

b. A group of psychological notions involving cognition and learning. They speak about learning through self-construction of knowledge.

c. A system of educational principles regarding the optimum methodology for fostering learning. Knowing that knowledge comes through constructive interaction between the lecturer and students or among cooperating students, the lecturer should allow students to determine their own learning objectives (Kanselaar, 2002:1).

Similarly, Phillips (2000 as quoted by Amineh & Asl, 2015), discusses many constructivist traditions. He contends that the educational constructivism itself has certain varieties, the two most well-known of which are Lev Vygotsky's social constructivism and Jean Piaget's personal constructivism.

In planned teaching, there has been a paradigm shift that can be characterized as a transition from behaviourism to cognitivism and subsequently from cognitivism to constructivism. This paradigm shift has shown that the nature of student learning and the environments that best support the various circumstances of learning have significantly changed within the field of education. The constructivist learning viewpoint has gained so much traction over the past twenty years that it has caused a paradigm shift in both the theory of learning and the epistemology of knowing (Amineh & Asl, 2015).

The main relevance of Vygotsky's (1934-1986) theories to constructivism stems from his theories about language, thought, and their mediation by society. With an anti-realist stance, Vygotsky contends that society and culture play a role in the knowing process and have an impact on it (Amineh & Asl, 2015). Piaget's contribution to constructivism is the foundation of a significant portion of Vygotsky's (1986) work. Vygotsky held the opposite view from Piaget (1969), who thought that development comes before learning. Regarding speech development, Piaget claimed that the student's egocentric speech eventually fades away and changes into social speech. Vygotsky, on the other hand, claimed that a child's mind is innately social and that their speech transitions from communicatively social to internally egocentric. Therefore, Vygotsky asserts that mind grows from society to the individual and not the other way around as the development of thought follows the development of speech (Amineh & Asl, 2015)

2.3   CONSTRUCTIVISM

Lev Vygotsky (1896–1934), Jean Piaget (1896–1980), and Jerome Bruner (1915–2016), among others, are the most prominent authors who influenced constructivism. The authors posit that students are active participants and social beings who interacts to construct new ideas from their pre-existing knowledge and experiences (Amineh & Asl, 2015). According to Wang and Ha (2013), Piaget's (1970) cognitive constructivism and Vygotsky's (1970) social constructivism are the foundations of constructivism, a learning theory that has been around for a while (1978). According to Piaget (1970), students actively develop new knowledge based on their prior learning and experiences. However, Vygotsky (1978) emphasized the value of environment and culture in the formation of individual and collective knowledge. The movement in education from skill mastery and application to a student-centred, problem-solving, and creativity-focused curriculum has piqued the interest of researchers and academics, and there are numerous approaches based on a constructivist ideology.

According to Feeney and Meyers (2016), constructivism relates to the manner in which students make sense of new information and, consequently, the many learning styles they exhibit since they acquire knowledge in various ways. Bas (2012) explained that students who are taught new concepts or skills rely on their prior knowledge to make connections between the new and the old. As they explore current events and their personal experiences, students in constructivist classes have the chance to work together. By considering different solutions to issues encountered in the workplace, the students, according to Barak and Dori (2009), share expertise and learn from one another. MacPhail *et al.* (2013) add that for students to succeed, lecturers must implement the fundamental ideas of a constructivist classroom. It is important to motivate students to take ownership of their education, use metacognitive strategies, and recognize the complexity of their own thought processes. Constructivists contend that learning is experiential in the sense that students construct knowledge and derive meaning from it based on their own thoughts and experiences.

Constructivism, according to Amineh and Asl (2015), is a synthesis of many theories combined into a unified framework. It entails the integration of cognitive and behavioural values. According to constructivists, students' learning in this situation is

a process of meaning creation. Constructivism can be used to assess students' levels of cognition, development, and comprehension.

In a similar vein, Bada and Olusegun (2015) characterize constructivism as a theory that is based on scientific research and observation since it is concerned with how students learn. Bada and Olusegun (2015) regard constructivism to be of relevance in a university classroom. Thus, constructivism is a learning theory that describes how students learn and acquire knowledge and may be found in psychology. According to the theory, students build knowledge and meaning through their interactions with peers as well as through the assumptions and life lessons they pick up through social interactions.

In the context of this study, Business Education students construct their own knowledge and understanding of the things around them in the classroom, thereby reflecting on those experiences. This means that Business Education lecturers should allow students to make sense of the module. Lecturers must take into account what students already know through prior learning, life experiences, and the society they live in, and they must allow students to apply their learning. (Amineh & Asl, 2015). The pre-knowledge of students can be used through their interactions, open discussions with the lecturer and peers. Hence, the lecturer needs to find ways to tap into each individual student's knowledge. Once the students learn something new, they must make sense of it in light of their pre-existing beliefs and, may then adjust the new information to make it more applicable or reject it as irrelevant (Bada & Olusegun 2015). For this reason, the intervention of the Business Education lecturer throughout the lesson is of utmost importance to ensure the achievement of learning outcomes.

Objectivism, which is frequently cited as the counterargument or polar opposite of constructivism, is frequently contrasted with constructivism. The work of behaviourists like Skinner (1953) is the foundation of much of objectivist thinking. According to objectivists, each individual interpretation of knowledge can be deemed to be either true or incorrect and that knowledge itself can be known outside the confines of any human intellect. If the right learning conditions are present, objectivists see specific pieces of knowledge as symbols or currencies that humans may acquire and transmit from one another (Bada & Olusegun, 2015:67).

Constructivism is thought to have its roots in Socrates, who concluded that lecturers and students should convey, understand, and construct the hidden knowledge by asking questions (Amineh & Asl, 2015). On the other hand, Kanselaar (2002) and Bada and Olusegun (2015) assert that constructivism has roots in philosophy, psychology, sociology, and education. In other words, the fundamental tenet of constructivism is that students construct new information by building on their prior knowledge. In stark contrast to traditional education, which sees learning as the passive delivery of information to students, this perspective places more emphasis on receipt than construction.

Mvududu and Thiel-Burgess (2012 as cited by Amineh & Asl, 2015) represent constructivism as one of the dominant theoretical stances in education. Some scholars and theorists view it as a theory of knowledge, others view it as a theory of learning while others view it as a philosophy of pedagogy. Science theory, educational theory, or a comprehensive worldview are further points of view. Additionally, Perkins (1992) points out that constructivism has a variety of philosophical and psychological foundations, including those of Jerome Bruner (1966), the development of cognitive psychology, and Jean Piaget's (1969) developmental perspective (Amineh & Asl, 2015:9).

2.4 SOCIAL CONSTRUCTIVISM

Social constructivism is a sociological and communication theory of knowledge that looks at how people collectively come to know and understand the world. According to this approach, students work together to develop their understanding, importance, and meaning. The tenet that students rationalize their experiences by building a model of the social world and how it works, as well as the conviction that language is the primary tool used by students to construct reality, are the most crucial aspects of this theory. Social constructivism also emphasises culture, context and knowledge construction in understanding what occurs (Amineh & Asl, 2015).

Lev Vygotsky, a Russian psychologist who is credited with founding social constructivism, held the view that knowledge can be created through conversation and contact with others. He claimed that language is a tool that students use to generate meaning during social interactions and that knowledge is co-constructed in a social

setting (Churcher, Downs & Tewksbury, 2014). It is also important to highlight how social development of the brain helps students react to their environment. Before knowledge is internalized, according to Roth (2000), students' interactions with the learning environment, their surroundings, and their peers form the basis of their knowledge (Amineh & Asl, 2015).

Kim (2001) drew attention to the fact that social constructivism is likewise predicated on particular beliefs about reality, knowledge, and education. The first presumption is that reality is created by students' activities. According to Kukla (2000), group members create the new knowledge. Furthermore, social constructivism holds that reality cannot be isolatedly discovered because it is not created prior to social invention. According to social constructivism, knowledge is shaped by social and cultural factors. Business Education students can create the context when they collaborate in a pleasant setting. Social constructivism stresses that *learning* is a social process that does not occur only within an individual or that is passively created by outside causes. According to social constructivists, when students participate in social activities like interaction and participation, meaningful learning happens (Kim, 2001). Social constructivists state that meaningful learning occurs when students are engaged in social activities such as interaction and participation (Kim, 2001).

Vygotsky (1978) had a significant influence on social constructivism, which contends that knowledge is first created, internalized, and then applied. According to social constructivists, students cannot create knowledge in isolation; they must work together to create it through the sharing of personal viewpoints. Thus, hypothesis and intuitive thinking are encouraged since learning is a dynamic process in which students should learn to independently uncover ideas, concepts, and facts. In fact, students cannot find reality since it does not pre-exist before being socially invented. Instead, students construct meanings through their interactions in the classroom and with their surroundings (Amineh & Asl, 2015).

According to Vygotsky (1978), learning is a continuous progression from the student's current intellectual level to a higher level that more closely resembles their potential. Social interaction is what causes this migration to take place in the zone of proximal development (ZPD). The ZPD is described as "the difference between the level of prospective development as assessed through problem solving under adult guidance,

or in partnership with more capable peers, and the level of actual development as determined by independent issue solving" (Vygotsky 1978:86). The power of the cognitive process is obtained from social interaction, according to Vygotsky, who emphasized that human mental activity is a case of social experience (Amineh & Asl, 2015).

However, in order to see students as an essential component of the learning process, both social constructivism and constructivism accept the individuality and complexity of a student (Amineh & Asl, 2015). According to constructivism, students are urged to create their own knowledge rather than copy it from a book or a lecturer (Kanselaar, 2002). Social constructivism, on the other hand, encourages students to create their own interpretation of reality that is shaped by their unique upbringing, culture, and understanding. Student's background serves as a guide when they create, learn, and uncover truth during the learning process. It is also emphasized how crucial it is to interact with knowledgeable society members. Wertsch (1997) adds that by interacting with their peers, lecturers, and the learning environment, students can also strengthen their critical thinking skills (Amineh & Asl, 2015).

Many issues have allegedly been brought about by academics' use of lecture-based instruction in higher education. Firstly, rather than seeking out information from other sources and learning from other students, many students show little initiative when studying and rely more on the lecturer as a source of knowledge (Harman & Nguyen, 2010). Secondly, rather than understanding the learning material, most students tend to memorize it (Thanh-Pham, 2011). Thirdly, many students are unable to improve their academic performance and learning abilities (Director *et al.*, 2006; Harman & Nguyen, 2010). Finally, lecturers frequently place more emphasis on surface learning than on deep learning. In contrast to complicated information absorption, surface learning mostly relies on the straightforward recall of knowledge. Johnson and Johnson (2009) and Tran and Lewis (2011) argue that the lecturing and learning processes now used in institutions of higher learning would be improved by lengthening lecture times to allow for classroom discussions and student interaction (Van Dat, 2016).

Amineh and Asl (2015) assert that social constructivist teaching strategies place a strong emphasis on methods that entail learning alongside others, including peer

collaboration, cognitive apprenticeships, problem-based education, online quests, and reciprocal teaching. Lecturers are introduced as facilitators, for instance, a lecturer discusses a topic, and a facilitator assists the student in developing his or her own understanding of the content. When the lecturer teaches, the student takes a passive role; however, when the lecturer facilitates the learning process and assists students in learning, the student takes an active role. The focus is thus on the student. This considerable shift in the lecturer's position suggests that the skills required for the lecturer to function as a facilitator are entirely different from those required of a lecturer. To contrast the roles of a lecturer and a facilitator consider the following: a lecturer reports, a facilitator questions; a lecturer teaches from the front, a facilitator supports from the back; a lecturer gives answers in accordance with a preset curriculum, a facilitator provides guidelines and fosters an environment that is conducive to effective learning; a lecturer typically delivers a monologue, whereas a facilitator encourages an ongoing, interactive dialogue with the students. In conclusion, the emphasis on social interactions for students' cognitive development and the significance of culture and history in their learning make social constructivism the constructivism in its truest form (Amineh & Asl, 2015).

2.5 COGNITIVE CONSTRUCTIVISM

Based on the research of Swiss developmental psychologist Jean Piaget, cognitive constructivism is an individualized approach to knowledge formation. The ages and stages components make up the two main portions of Piaget's (1970, 1977) theory. These include making assumptions about what children can and cannot grasp at various ages, formulating a theory of cognitive development that explains how children acquire cognitive skills, and teaching students how to deal with mental instability when they experience internal cognitive conflict. This viewpoint emphasizes how students negotiate how to interpret their experiences and the advantages of socially engaged learning activities supported by the lecturer's intervention (Amineh & Asl, 2015).

Piaget (1977) maintains that learning happens when people actively construct meaning rather than learning in a passive way. According to the author, when students are faced with a situation that tests their ability to think, a state of disequilibrium or imbalance is created. This situation forces students to adjust their thinking in order to

strengthen their judgment, which helps them make sense of the new information by integrating prior knowledge into the existing knowledge. When faced with this problem, students make accommodation by reorganizing their current knowledge to a higher level of reasoning (Amineh & Asl, 2015).

Constructivist teaching's participatory character gives students the chance to take ownership of their learning by actively participating in the process of knowledge formation because each student brings a distinct set of experiences to the classroom (Churcher *et al.,* 2014). Learning-teaching concept rather than teaching-learning concept is the focus of constructivist teaching, which emphasizes the development of learning, questioning, or inquiry skills (Wang & Ha, 2013).

2.6   CONSTRUCTIVIST LEARNING

Reasoning, critical thinking, use of knowledge, self-regulation, and mindful reflection are all encouraged by constructivist learning. According to Vygotsky's (1978) Zone of Proximal Development (ZPD) hypothesis, higher order thinking develops through social interactions in the social environment (Vygostsky, 1962, 1978). Students' critical thinking, which involves the process of running into inconsistencies, defending views, and ultimately internalizing their patterns of thought, can only be developed in a constructivist learning environment that emphasizes group negotiations. Students should actively construct knowledge by using a variety of existing knowledge to create new knowledge and makes sense of incoming information (Gredler, 2009; Schunk, 2012). Students interpret information differently for themselves based on their pre-existing cognitive frameworks and expertise, hence the new skills or abilities that each student acquires will vary. Students' motivational beliefs and context-driven self-regulation processes influence their cognitive engagement and learning results (Kwan & Wong, 2015).

According to Brooks and Brooks (1993), constructivist pedagogies should be used to encourage student initiative, accept student autonomy, use cognitive language to challenge critical thinking, foster independent thinking and innovation by building on student responses, develop knowledge construction by asking students to acknowledge prior learning, provide opportunities for student interaction, and encourage critical thinking and problem solving independently.

To help lecturers and teachers as they create learning experiences, Fosnot (1996) provides five constructivist principles. These concepts have significance for educational practice. He contends that learning should be developmental, that it necessitates cognitive dissonance, that it is during the process of learning that new conceptions of knowledge are frequently formed, that learning is facilitated by questioning, driven by reflexivity, and encouraged by communal debate (MacPhail *et al.*, 2013).

Constructivism distinguishes two aspects: a branch of epistemology and a style of instruction. To put it simply, the former refers to information acquisition and sources, while the latter denotes different instructional philosophies, such as collaborative learning, student-centered learning, and genuine assessment (Kwan & Wong, 2015). Learning occurs through the ideas of scaffolding, cognitive apprenticeship, tutoring, cooperative learning, and learning communities in a constructivist classroom. As a result, the foundation of constructivist teaching is the learning that takes place through students' active participation in the building of meaning and knowledge. Independent learning is encouraged through constructivist teaching, which also fosters students' enthusiasm and critical thinking (Amineh & Asl, 2015).

Hoover (1996 cited in Amineh & Asl, 2015:11-12) introduces the following implications of constructivism for teaching:

o To begin with, lectures cannot be seen as the transfer of knowledge from the known to the unknown. Constructivist Business Education lecturers do not merely impart knowledge to their students in a one-sided discourse. They should instead instruct the students and give them chances to evaluate the veracity of their interpretations;

o Second, constructivist lecturers assess the existing knowledge of their students and create learning settings that encourage students to combine their prior knowledge with new information and experiences. Moreover, lecturers are compelled to employ various teaching strategies due to the diversity of their students;

o Thirdly, student involvement should be the focus in constructivist teaching. Instead of Business Education lecturers addressing the needs and interest of

the education system, the main concern should be on student's engagement and mastery and the benefits thereof;

o A fourth requirement is to give Business Education students enough time to actively integrate and build the new information. As a result, the students will work at a pace that allows them to reflect on their new experiences and make a connection between the past and present events, which will increase their understanding of what they have learned.

2.6.1 A Constructivist Classroom

Lecturers foster a climate in which students challenge their own and one another's assumptions and theories in constructivist learning environments. A constructivist lecturer departs from the traditional method of instruction in favour of a student-centred approach, allowing students to rework their discovery of new knowledge while maintaining a positive attitude during interaction, encouraging deep learning, and inspiring students to conduct research on complicated theories. The expertise of a constructivist lecturer in the classroom is established on the effectiveness of student interaction with the lecturer and interface amongst students (Amineh & Asl, 2015). The complexity of the learning environment that a student should be able to function in at the end of their studies should be reflected in the learning tasks and the classroom setting in order to properly engage and challenge Business Education students.

Amineh and Asl (2015) advise lecturers to allow students the freedom to take charge of their education and the chance to work through issues, but the learning environment should also encourage and test students' creative thinking. Banda and Olusegun (2015) advise developing an environment that exposes students directly to unusual teaching strategies and resources. For instance, Bekele (2016) argues that student-centred approaches necessitate a suitable physical setting to enable the use of various teaching methodologies including project work, demonstration, and Jigsaw methods with various sorts and combinations to pique and sustain student attention. In addition, lecturers are encouraged to continuously give learning tasks and prompt feedback to the students, to motivate them in becoming effective thinkers. Creative thinking can be achieved when Business Education lecturers give multiple roles to students, when students to commit more hands-on learning, room for visual reflection and a flexible

classroom layout (Amineh & Asl, 2015). According to Bada and Olusegun (2015), if students are in contact with learning resources, they can derive meaning from them. It is also important to highlight that all constructivist learning environments must allow for active learning. This supports the idea that constructivist learning must occur in a conducive learning environment.

For students to participate cooperatively and develop critical thinking, the learning environment in a constructivist approach must be supportive. The exercises that lecturers design should be based on difficulties and experiences encountered in real life. Students in Business Education would then be able to work together, share viewpoints to develop answers to issues, or assess current circumstances and provide alternatives where they think creatively. As a result, each student will help the group succeed by completing a specific task related to the entire assignment (Feeney & Meyers, 2016).

Amineh and Asl (2015) claim that the constructivist learning approach places a strong emphasis on student-centred instructional classroom approaches. This method of teaching requires lecturers to design their curricula around the experiences of their students. The use of technology in classrooms to assist instructional learning methods is a trend, according to the experts. However, recent research has shown that constructivism and constructivist learning are not well complemented by technology.

2.6.2   Benefits of Constructivist Classrooms

According to research, the constructivist educational model has various advantages for students. In a constructivist classroom, the instructor helps students connect their prior knowledge to organizing new material as they work together with classmates to apply their learning to new constructions and broaden their understanding (Mishra, 2014). Through interactions with other students, students can show that they have the capacity to think critically, solve problems, create arguments, support solutions, and learn new information (Şengül & Katranci, 2012). This means that rather than being passive listeners who rely on rote memorization, students learn more and enjoy learning when they are actively engaged. Constructivism focuses on helping students develop their thinking and understanding skills while also encouraging them to take

ownership of their learning and work toward academic achievement (Feeney & Meyers, 2016).

Through the creation of a learning environment that prioritizes collaboration and the sharing of ideas, constructivism fosters social and communication skills. In order to work effectively in groups on assignments, students must learn how to communicate their ideas and express themselves. The ability to discuss and assess one another's contributions in a manner that is acceptable to others is another skill that students must develop. This is crucial to achieving their learning objectives because students will be exposed to a range of situations where they will need to work together and navigate around the opinions of others (Bada & Olusegun, 2015).

The benefit of interacting with classmates is being exposed to various points of view and accepting the variances brought about by diverse students. Because depth of knowledge has been emphasized as one of the key goals of constructivist-oriented educational reforms, constructivist instruction may help students process information deeply in their minds (Nie & Lau, 2010). Additionally, when students engage in group activities where they are given a problem or topic to discuss and, before coming up with a solution, they analyse and synthesize the information, connect it to a real-world scenario, and build the resolution, higher order thinking skills are developed. As a result, students are given the chance to engage in activities that are reflective of their own metacognitive processes (Feeney & Meyers, 2016).

When students select topics for required course work that are pertinent to their line of work, constructivist approaches help guide the learning process (Dunlap, Dudak, & Konty, 2012). Additionally, many times, students are involved in the assessment design. Constructivist evaluation encourages student initiative and personal investment in their journals, research reports, tangible models, and creative representations. Students' capacity to apply knowledge to real-world situations improve when their creative side is encouraged (Bada and Olusegun 2015:68).

Constructivist learning is transferable as the organising principles created and developed in a constructivist classroom can be used in other learning settings. This method of instruction and learning prepares students for life beyond graduation by emphasizing problem-solving, upholding an open-minded worldview that values all

viewpoints, and assisting others in connecting newly learned material to prior knowledge (Balaji & Chakrabarti, 2010).

2.6.3 Challenges and Limitations of a Constructivist Classroom

Cooperative learning practices and collaborating in a constructivist classroom are challenges that many students struggle with. According to O'Leary and Griggs (2010), it might be difficult for students to instruct their classmates at times since a lack of prior knowledge may limit their ability to address topics with their "home" group. They are also limited in their ability to provide comments to their peers due to their lack of understanding. Cooperative learning is supported by the fact that at first, students find it challenging to work without the lecturer's intervention (O'Leary, Wattison, Edwards & Bryan, 2015).

Furthermore, assessing students might be challenging in a constructivist teaching environment. Formative assessment methods are where the issue in assessment mostly manifests itself. The focus is more on the process than the result when learning is constructedivist. The problem in this situation is the evaluation instrument that will identify abilities that have been mastered and those that require remediation. Due to the fact that learning is a two-pronged process, the lecturer must take into account both the process and the outcome of the learning in order to conduct an effective evaluation (Feeney & Meyers, 2016). Since students are not actively engaged in the learning process, lecturers must take a creative approach to non-traditional assessment methods. Lecturers are aware that students learn differently (Swaray, 2012). Portfolios, reflective activities, rubrics, and questionnaires are suggested as assessment tools.

2.6.4 Implications for Teaching and Learning

The idea that learning is an active process lies at the heart of constructivism. Understanding, on the other hand, cannot be forced because it must arise internally. Constructivism calls for a lecturer to take on the role of a facilitator, whose main goal is to help students become active students and draw meaningful connections between their past knowledge, new knowledge, and the learning processes (Nie and Lau 2010). According to the literature, a constructivist lecturer as someone who will:

i.   Encourage and accept the initiative and liberty of students.

ii. Encourage students to use a variety of resources, such as unprocessed data, first-person accounts, and interactive tools.

iii. The lecturer should first find out how students perceive a concept before explaining how he or she understands it.

iv. Inspire students to have conversations with the lecturer and one another.

v. Promote student inquiry by posing meaningful, open-ended questions; also, encourage students to pose inquiries to one another and seek clarification on initial statements.

vi. Encourage conversation by exposing students to situations that challenge their initial assumptions.

vii. Allow students to build relationships and develop metaphors.

viii. Evaluate students' comprehension by having them complete and apply open-ended assignments (Bada & Olusegun 2015:69; Brooks & Brooks, 1993).

Therefore, from a constructivist viewpoint, the lecturer's principal duty is to establish and sustain a collaborative atmosphere for problem-solving where students can build their own knowledge while the lecturer serves as a facilitator and guide (Bada & Olusegun 2015). Through a variety of educational reforms in teaching, including real instruction, teaching for understanding, and constructivist innovations, the notion that learning is an active and creative process has been created. According to a constructivist theory, students actively construct their own knowledge, which they do by connecting new information to what they already know and to the real world. Learning is an active process of creating meaningful representations of knowledge rather than just passively absorbing information. A student can generate knowledge through cognitive processing, while social processes can be done through communication and interpersonal language interaction (Nie and Lau 2010).

In constructivism, learning is viewed as a constructive process in which a student creates an internal representation of their knowledge and a unique interpretation of their experiences. Since its structure and connections serve as the framework for other knowledge structures, this representation is always subject to modification. Experience plays a crucial part in understanding and grasping the meaning of what is being learned, making learning a dynamic process. This theory of knowledge does not necessarily deny the reality of the outside world. According to this view, knowledge is

created from experience and modified by many experiences. The focus of this philosophy is on understanding and problem-solving. Other crucial elements in this theory of learning are teamwork, authentic tasks, experiences, and assessment. Piaget (1973) argued that students go through stages when they accept ideas they may later change or not accept. Learning is defined as discovering or reconstructing through rediscovery. As a result, through involvement and active participation, understanding is developed gradually (Amineh & Asl, 2015).

According to Bruner's (1973) as quoted by Amineh and Asl (2015:11), theory of learning, students develop new ideas and information based on what they already know. According to this interpretation of constructivism, the student makes choices about what information to use, how to formulate hypotheses, and how to proceed to incorporate new information into his prior knowledge and experiences. In order to give experiences meaning and organization, Bruner emphasized the function of cognitive structures and recommended that students look beyond the confines of the available knowledge. Effective education is built on the independence of the students, and this freedom can grow when the students attempt to learn new concepts on their own. The curriculum, however, must be set up in a gradual way so that students can build on what they have already learnt.

Dewey (1938), who emphasized that students should be "actors" rather than "spectators," provided the foundation for active learning and involvement. The cognitive constructivism theory is utilized when applied to individual learning, but from the viewpoint of group learning. Social constructivism, which also pertains to this topic, is arguably the most pertinent branch of constructivist theory. The idea that students are social beings with cooperative social interactions that shape how knowledge is created gives rise to the position of the "lecturer" and to numerous social processes in education and pedagogy (Exley, Dennick & Fisher; 2019).

2.7 MOTIVATION THEORIES

The study of motivation focuses on the reasons behind people's actions and thought processes. It is a needs-satisfying process, which indicates that when a person's

wants are met by specific circumstances, they will exert more effort to achieve organizational goals (Graham & Weiner, 1996).

Motivation explains why individuals act in accordance with their own desires and requirements in order to fulfil a given task. To serve as a motivation or an inducement is a procedure. Efforts made to gradually persuade students or staff to behave in a particular way are referred to as a motivation. Many theories explain the motivation process in a variety of ways, but in this study, we will focus on its four fundamental phases. They are as follows:

Need → Arousal → Behaviour → Satisfaction

Briefly, the motivation process demonstrates that everyone has needs that they work to fulfil (Turabik & Baskan 2015). People are driven by how badly they desire something, which causes them to put forth effort, and by their capacity to execute when those efforts are combined (Graham & Weiner, 1996). In a similar vein, Bassett-Jones and Lloyd (2005) acknowledge that motivation is the readiness to put up significant effort in support of organisational goals, sparked by the potential to meet some personal needs. In this perspective, a need is an internal condition that makes certain outcomes seem desirable. Unmet needs lead to pressure that elicits an individual's drives. These motivations encourage someone to use their skills to achieve goals in order to fulfil needs and relieve stress. Physiological or psychological inadequacies that cause behaviour are known as needs. They might be powerful or weak, fluctuate over time, and are affected by external circumstances.

According to Amin and Claudia (2016), motivation in education refers to a student's internal drive that pushes or propels them to meet their most basic needs or wants. The components of motivation include those that inspire, guide, and maintain improved academic achievement. Business Education students can be motivated when provided with consistent feedback, when the lecturer aligns instructions to learning standards and through formative assessment. This means that lecturers must provide students with samples of excellent work so they have something to compare their own work to and can recognize their own areas of weakness.

For an institution to penetrate the global market, the staff should be competent, able to compete and perform (Amin & Claudia 2016). It is evident that demotivated and disgruntled lecturers contribute to a dysfunctional educational system where the absence of strategies like inquiry, creativity, and problem-solving does not give students and preservice teachers the necessary tools to confront issues in the classroom and in the workplace. When lecturers' needs are addressed, there is a chance that they will be encouraged to work hard and help the institution reach its objectives. A key component in achieving the university's vision and objective is the professors' motivation (Gemeda 2015) and the creation of policies to improve lecturer's performance could be informed by theories of motivation (Graham & Weiner, 1996).

According to Gemeda (2015), staff motivation can only be achieved once the lecturer's needs and goals are aligned with institutional goals. It is argued that universities need to set aside various internal and external motivators for its staff members to increase their motivation for sustainable success. Contrarily, ineffective teaching and learning will occur due to demotivated staff. Only if lecturers are willing to put up their best effort can their commitment to high performance in the classroom be realized (Gemeda, 2015).

The degree and origin of learning motivation is a key premise relating to the makeup of students. If the stakeholders asked why some students are able to complete projects despite great difficulty while others quit up at the first sign of trouble and why other students set their sights so high that failure is inevitable, motivational concerns over academic accomplishment would be addressed. The student's belief in his or her learning potential has a significant impact on how motivated they remain to learn. This sense of competence and confidence in one's ability to address new challenges come more from successful problem-solving experiences than from external validation or inspiration. This idea is related to Vygotsky's zone of proximal development (ZPD) (Vygotsky 1978), in which students are given challenges that are close to where they are at in their development. Naturally, students acquire confidence and determination to take on more difficult difficulties when they successfully accomplish difficult learning assignments.

Despite the fact that success normally for those who had experiences in the past, Graham and Weiner (1996) recommend lecturers to look at what students are doing, or their choice of behaviour, how long it takes for them to start an learning activity, or their latency of behaviour, how hard they work at the activity, or their intensity of behaviour, how long they are willing to stay on the learning activity, or their persistence of behaviour, and the time it takes for them to complete the activity.

Increasing success expectations, changing stable to unstable failure attributions, implementing reward practices in the classroom that value individuality over control, and changing the way ability is perceived so that ability is seen as stable rather than unstable are all techniques that could be used to increase motivation (Graham & Wiener, 1996).

The primary focus of motivational theorists is on the incentive systems that let students achieve their objectives only if the entire group succeeds. In this case, the achievement of the goal of one student means the accomplishment by the whole group. Students are expected to work cooperatively in this manner. In contrast, a competitive educational setting encourages the attainment of goals by one student and prevents other group members from attaining it. This suggests that a student's accomplishment of a goal is unrelated to and does not affect the outcomes of the other students (Darnis & Lafont, 2015).

There are two types of motivational change approaches. One approach is to adjust students' understanding through a student-centred approach. This approach will require the selection and treatment of students who ascribe their failures to stable causes. The other approach in the classroom assumes that students would progress only if their performance is compared to their own prior performance rather than with other student's performance, which means that it is promoting commitment to learning tasks rather than ego involvement. Similarly, both approaches presuppose those students who desire achievement perform below expectations due to a lack of motivation that exists either inside the individual or the learning environment (Graham& & Weiner, 1996). Amin and Claudia (2016) assert that it is simple to obtain the participation of potential students and to recruit them. Opportunities must, however, be accompanied with staff that is ready, as evidenced by their drive, skill, and institutional learning.

Numerous theories of motivation are centred on the demands, objectives, and reasons why students need to be motivated as well as effective methods for motivating them (Amin & Claudia 2016). The major researchers into motivation, whose work is focused on students, were Maslow (1954), Herzberg *et al.* (1959), McClelland (1961), Vroom (1964), Alderfer (1972), Locke *et al.* (1981) and Bassett-Jones and Lloyd (2005:932).

2.8   PROCESSING MOTIVATIONAL THEORIES

2.8.1   Self-Efficacy

Self-efficacy is a constructible quality. Self-efficacy is defined by Yadin (2015) and Ahrens *et al.* (2016) as the confidence in one's ability to succeed. Bandura (1977,1986,1989, 1994) presented self-efficacy as students' views about their capacities to do successfully. For example, when a student is given a difficult assignment, he/she will question his/her ability to do it and, that is, enlisting an efficacy. Beise and Sherr (2015) regard self-efficacy as a sense of confidence that students portray when they successfully master a learning activity. A sense of self-efficacy has a beneficial impact on many facets of student life and fosters an expectation of efficacy. A social learning theory notion known as "efficacy expectation" describes expectations that lecturers and Business Education students have regarding their capacity to complete more complex tasks. According to the self-efficacy hypothesis, which derives from social cognitive theory, students are capable of completing tasks, succeeding, and achieving goals (Yadin 2015).

Extensive experimental research demonstrates the effect of efficacy beliefs not only on accomplishment behaviour but also on health-related issues including coping and stress, anxiety, pain, tolerance, and fear, which are all mentioned by Bandura (1986). Self-efficacy beliefs can be rejuvenated when the lecturer and students are informed about how to lessen physical and emotional stress, anxiety, depression and encourage physical strength and stamina, although it can be a challenge to the university (Ahrens *et al.,* 2016). The application of self-efficacy has enormous popularity in contemporary motivation research. In fact, Bandura (1989) emphasised that people's level of motivation is driven by self-efficacy beliefs. For instance, the amount of effort and perseverance a student puts into their academic work can be a good indicator of their level of motivation, which is fuelled by their sense of self-

efficacy. The stronger the belief students have on their capabilities, the greater and consistent are their efforts.

The interaction between the lecturer and the students during class debates and investigations may help the students feel more capable. Students' complete participation in their own learning and a sense of achievement from accomplishing difficult tasks may be made possible by the interaction between them and the lecturers. Second, in-depth comprehension and learning may increase students' interest in their subject matter. For instance, Iran-Nejad (1987) discovered that deep comprehension sparked attention, while Favero, Boscolo, Vidotto, and Vicentini (2007) discovered that classroom debate piqued students' interest (Nie & Lau 2010). Thirdly, experiential training (teaching practice for Business Education students), industrial tours and community engagement promote students' perception on the importance of learning tasks (Nie & Lau 2010). Student traits, expectations, task engagement factors, and efficacy signals are the four general class variables included in Schunk's (1985) model of motivated learning, which also contains four more specific class variables. Due to their distinct abilities and experiences, students approach their learning tasks in various ways. These skills and experiences do affect how confident students feel about learning new information, which in turn affects how motivated students are to encourage task accomplishment and skill growth. Notably, effective learning does not ask for efficacy that is extremely high. High self-efficacy students may be overconfident in their skills and not put forth much effort, which has a detrimental impact on them (Ahrens *et al.*, 2016).

It is necessary that lecturers' instructional methods influence both students' learning and self-efficacy. Although teaching methods encourage learning, they should also foster self-efficacy. For good performance to take place, students need to be granted opportunities to display self-directed mastery to practise their skills independently. Research has indicated that students with high self-efficacy perform because of less apprehension, intrinsic interest and endurance. To help students with their self-efficacy is to understand their capabilities. Students' self-efficacy increases when students have a positive perception about their lecturer which is developed through support and mentoring. Paying attention to how people see things differently can help decrease anxiety and lead to more effective students. If Business Education lecturers cultivate

students' self-belief in their abilities for their particular course or module and help them overcome fears, they experience growth and development as future Business Education teachers and entrepreneurs (Ahrens *et al.,* 2016).

2.8.2   Goal Orientation Theory

Achievement goals serve as the motivation behind a student's participation in an academic assignment. They are crucial for maintaining students' motivation. Student goal orientations serve as the rationale or justification for participating in, choosing, and completing a variety of learning activities or success objectives in educational contexts (Lüfteneggera *et al.*, 2014).

Research has distinguished between two types of achievement goals: mastery and performance goals. Central for mastery/learning goal-oriented individuals is the focus on learning, developing new skills, improving the level of competence and trying to understand new learning subjects. In contrast, performance goal-oriented students are concerned with outperforming others, focusing on demonstrating competence and ability in comparison to others (approach focus) to avoid failure and unfavourable judgements of ability by others (Lüfteneggera, *et al.,* 2014). When students expect success, they are motivated towards an approach orientation, while students expecting failure are motivated towards an avoidance orientation. Both goals are linked to different patterns of learning (Ng'ang'a, Mwaura & Dinga, 2018).

The effects of performance goal orientation include students who are reluctant to ask for academic assistance because they view academic failure as making errors and are more likely to give up studying as a result. Extrinsically motivated people tend to be these people. Students with a performance approach orientation, on the other hand, prioritize seeming successful above learning in order to do better than everyone else in the class, be the student with the best performance, and exceed them all. Academic growth among those students is sluggish, their learning is rote-based rather than meaningful, and all of their learning activities are done in an effort to achieve high marks. Students' aim to be the best in class, to be the student with the best performance, outperform everyone in class and focus on looking successful rather than learning. Those students' academic progress is slow, learning is based on rote

learning rather than meaningful learning and all the learning activities are pursued with the aim of getting good grades. Students aim for success to ensure parental satisfaction, to dominate the classroom, to feel important and to avoid looking stupid or avoid feelings of shame (Kösterelioğlu 2018:94-95).

Learning goal orientation is associated with a student's desire to master the subject completely and to learn well throughout the learning process. Students that are focused on learning goals equate learning and abilities. They assess their growth by comparing their previous and present performances and hold the belief that effort enhances the capacity to acquire abilities. Students with learning goal orientation know how to tackle challenges and bring the best out of it. They are motivated within, never cease to try, and achieve their desired goals to the best of their ability irrespective of the difficulties. Research show that students who are goal-oriented in their learning are effective. In order to learn a topic thoroughly, grow as individuals, demonstrate progress, and surpass the criteria they have set for themselves, students with learning goal orientation aspire to do so. According to Köstereliolu (2018), students with learning avoidance orientation fear being misunderstood, being unable to fully understand the issue, and establishing incorrect connections with prior knowledge. (Kösterelioğlu 2018:94-95).

2.9   THE CONCEPT OF TEACHING AND LEARNING

Teaching has a crucial role to play not only at secondary education but also in higher education as it can help shape a student's future to become an effective professional and a better human being. Briggs (2019) describes teaching as one of the endeavours that need wisdom, humility, hard work and dedication. An experienced Business Education lecturer understands the causes of a student's success and failure from past experiences and may use the learned experiences to choose the subject matter. This involves presenting the content and the student gaining the specific knowledge, skills and other relevant information for academic and mental growth, bearing in mind that the effectiveness of teaching depends on how much knowledge and skill had been received by the students (Shah, 2019). In addition, teaching becomes more successful when the lecturer understands the theories and use a range of teaching methods effectively (Shah, 2019).

Kimweri (2014 as cited by Briggs, 2019), defines teaching methods as the way in which the lecturer arranges the students and the kinds of procedures utilised to speed up the learning process. The number of Business Education students and the topic being taught are only two examples of the variables that affect the learning process. However, a lecturer's strategy to achieving the desired goals is outlined in a plan called a teaching method. From the above perspective, the teaching methods used in teaching Business Education ought to align with the learning objectives to ensure achievement of students. There are different methods of teaching which includes lecturing, scaffolding, demonstration and questioning and answering, which are considered teacher-directed. These methods are explained in detail below:

2.9.1 Lecturing Method

The lecturing method is lecturer controlled and information centred in which lecturer works as a role resource, does the talking while the students passively listen. Ucus and Acar (2018) describe lecturing as a process in which knowledge is designed to flow from the lecturer as sage to the student as receptacle. This approach is concerned with the lecturer planning the curriculum, lecturing and being in control of the learning environment. It is believed that students require information to fill in their knowledge gaps and that only the lecturer can start successful learning through class presentation.

2.9.2 Scaffolding Method

The socio-cultural theory of Vygotsky (1976), which discusses the role adults might play in cooperative problem-solving activities with children, is frequently linked to scaffolding. The temporary assistance given to students to enable them to complete a learning assignment is referred to as scaffolding when used as a metaphor in the context of education. Various methods of support can be used, such as modeling and asking questions about various topics to various age groups (van de Pol, Volman & Beishuisen, 2010). On the other hand, de Jager (2019) explains scaffolding as an effective strategy by which a competent lecturer or a peer assists students in executing an allocated task beyond their existing abilities. Class activities and assignments should be designed in a manner that enable students to solve problems and complete

the allocated work effectively within the specified period to achieve the learning objectives, with the support of the lecturer.

In communicative encounters where the student learns from the standpoint of the other, van de Pol *et al.* (2010) claim that both students and the lecturer actively develop shared understanding or intersubjectivity. Since scaffolding is such a dynamic intervention that focuses on students' development, the lecturer's support during scaffolding is greatly influenced by the circumstances, such as the type of work (for example, well-structured vs ill-structured) and the replies of the students. The lecturer's support is needed to assist the student to solve problems and most importantly, enable students to clarify new concepts and share ideas amongst themselves (de Jager; 2019). Students advance by ongoing participation in new learning activities, eventually reaching a point when they are proficient in the material and do not require lecturer assistance. Therefore, scaffolding aids students in acquiring learning abilities that are useful to them both inside and outside of the classroom (Hanewicz, Platt & Arendt, 2017).

2.9.3 Demonstration Method

According to Sewanu (2018), the demonstration method of teaching entails imparting knowledge by physically demonstrating actual information using audio-visual tools. It involves explaining, demonstrating and doing the experiments during the lesson. Nwalo and Eze (2021) define the demonstration method as a technique that combines explanation with the handling or manipulation of real contents, materials, and equipment in order to teach concepts and principles of the learning topic.

The purpose of using the demonstration teaching approach is to demonstrate how an event occurs according to the teaching materials, how they are obtained, and to help students grasp the teaching and learning process more easily. By utilizing the information and resources at hand, learning should be created to permanently alter student knowledge and behaviour in order to increase student retention. The display teaching style increases student grasp of subjects while also improving performance on practice, assignments, and exams (Nwalo & Eze, 2021).

There are two types of demonstration methods: lecture demonstration and performance demonstration. A lecture demonstration method is a type of instruction that combines verbal explanation with hands-on experience to convey concepts and information to the audience, in this case, the students. The ability to see the lecturer's abilities makes it extremely effective. A lecturer may opt to present the content, thereafter, reveal the steps accompanied by a thorough explanation to make learning meaningful to students. Contrarily, the demonstration performance approach of teaching is built on the sensible tenet that students learn by doing. This suggests that students acquire the necessary physical and mental abilities through practice, supervised by the lecturer (Sewanu, 2018).

2.9.4 Question-and-Answer Method

Question-and-answer method refers to a teaching and oral testing strategy centred on the use of questions for the student to respond to. One of the most efficient methods for exposing students to a stimulating learning environment is the questioning approach (Briggs, 2019). The question-and-answer method can be used to present lessons as the students are motivated to respond to the questions simultaneously giving opinions (Putra, Junaid & Sulman, 2021). The motivation to give answers during the lesson prompts the use of admissible language, which is English, the medium of instruction in Business Education classes.

Furthermore, Liu (2017) is of view that the question-and-answer method creates a conducive learning environment which enhances effective dialogue amongst the students and the lecturer. For productive learning to take place, the lecturer's questions must be abundant and interrelated with the text, accompanied by the key points and the terminology used that should be concise, clear and accurate. Students will actively participate and learn to express their own views comprehensively. The status of student learning can be reflected and their pragmatic competence may be cultivated for success in learning (Liu, 2017).

The question-and-answer method serves a wide variety of functions which relate to arousing interest, activating prior learning, diagnosing strengths and weaknesses, checking progress and understanding, controlling group dynamics by encouraging participation and discussion, encouraging deep level thinking and active learning,

assessing achievement and reviewing and summarising (Exley *et al.,* 2019). In essence, the question-and-answer method is relevant to all teaching approaches and methods (Briggs, 2019).

In contrast, learner-centred approaches are more effective than traditional teacher-centred pedagogies. According to Di Biase (2019), learning methods depict a shift from passive absorption of facts and skills through memorisation to active learning as students actively create, interpret and restructure the new knowledge. The switch aligns learner-centred methods with constructivist approaches to learning. On this account, students are given opportunities to actively participate in the classroom and engage in self-directed learning as well as share learned information with their peers (Pereira & Sithole 2020). Knowledge is not detached from Business Education students and, students should not be viewed as empty vessels rather as scholars who bring their own experiences and incorporate new information into their pre-existing knowledge. Pereira and Sithole (2020) point out that this approach changes the role of the lecturer from a disseminator of information to a facilitator in a classroom environment. That is to say, the lecturer facilitates learning activities which include solving problems, answering questions, students formulating their own questions, discussions, debates and brainstorming.

Regardless of the benefits with learner-centred approaches which have been used in education for more than two decades, Weimer's classroom observation (2012 as cited by du Plessis, 2020), found that 75% of academics who were provided with student-centred teaching techniques used lecture-based, teacher-centred pedagogies because they found the learner-centred approaches to be difficult. However, preparing ahead and being well-informed about potential challenges beforehand might assist lecturers better get ready to utilize this strategy. Adopting and successfully implementing a learner-centred teaching method to enhance student learning and enrich Business Education modules requires commitment and creativity. Student-centred methods include discussion method, the discovery method or problem-based method, cooperative learning, project-based method, the role play method and the inquiry-based method.

2.9.5   Discussion Method

Any teaching or learning environment that allows for student idea sharing should include the discussion approach. The technique can be applied at the beginning of a topic to discover the students' preconceived ideas about the subject matter. It may be used to wrap up a subtopic by providing students with a brand-new scenario and asking them to explain it in terms of what they have learned so far (Briggs, 2019). With the discussion method, the students share their pre knowledge and experiences verbally with team members and class groups. Students are awarded an opportunity to learn to participate in the conversation to solve problems together. During discussions, there is two-way communication when both the lecturer and students participate in the teaching and learning process to accomplish instructional objectives (Chakim & Andayani, 2020).

2.9.6 Discovery Method

Constructivists like Jean Piaget, Jerome Bruner, and Seymour Papert are known for developing this form of problem-based learning technique, which is also known as experiential learning, 21st century learning, and learning by problem-solving. The discovery approach calls for a lecturer to offer guided learning assignments, utilizing a range of instructional strategies, and for students to be able to explain their own thoughts while the lecturer affirms the veracity of the shared concepts and beliefs. Students build on their prior knowledge and the most recent learning experiences as they engage in discovery learning through a problem-solving scenario. Students can interact with their surroundings by investigating and rearranging things and materials to determine answers to problems and offer feedback (Briggs, 2019).

2.9.7   Project Method

The project teaching approach is extensively used in a variety of subject areas, predominantly in modules for senior undergraduates and postgraduates in higher education institutions. Nwalo and Eze (2021) claim that the use of the project approach in primary, secondary and higher education is not very noteworthy. In light of this, more has to be done to raise awareness of the project-based learning approach's efficacy and to enforce more of its adoption, particularly in higher education institutions.

Lecturers should support students' projects by providing clear expectations and assisting them in decision making in areas that are of concern, for instance, in the project's discovery, definition, verification, application, and mastery. To improve student comprehension and retention, it is crucial to pinpoint the advantages resulting from the project method's efficacy and its use in Business Education (Nwalo & Eze, 2021). According to Fuertes-Camacho, Graell-Martn, Fuentes-Loss, and Balaguer-Fàbregas (2019), the project method is distinguished as interactive and participatory, allowing students to solve the factual, real-world problems of the community. It is also a research method that enables students to develop practical skills and critical and reflective thinking. Being proficient as lecturers in sustainability and encouraging major curricular learning in students are both aims that may be achieved, and the project approach provides an effective didactic model for doing both (Fuertes-Camacho *et al.*, 2019).

Nwalo and Eze (2021) are of the opinion that project-based learning gives students the chance to acquire the necessary skills and information that are readily maintained. In a simulated classroom environment, students watch and practice in order to accomplish a shared objective. Students get familiar with a variety of projects and the requirements that go along with them. They then select project themes based on their interests and prior experiences. This supports the idea that educating students through the project method will contribute to successful instructional delivery and increase student retention at institutions.

2.9.8   Role-Play Method

Role play is a teaching and learning strategy that enables students to share duties or to depict a scene in the context of a real-life event in front of an audience. Role play is a strategy used in the classroom to encourage students to actively engage in the learning process and to alleviate anxiety and shyness (Castro & Villafuerte, 2019) & (Krebt, 2017). The preparation for role play strengthens student confidence enough to express their own ideas and feelings (Castro & Villafuerte, 2019). A role play activity promotes critical thinking skills and allows students to apply their knowledge by engaging them in various real-life scenarios (Ma, 2020).

Castro and Villafuerte (2019) consider the role play method as a safe way for getting the feel of the situation. The way students respond in different contexts and situations may be demonstrated through role-playing exercises (Krebt 2017). Lecturers need to bring liveliness to the classroom through the implementation of role play because the approach is a pedagogical tool used to improve students' interest in aiming for academic achievement (Castro & Villafuerte, 2019).

Differences in the identifying role might be interpreted as role conflict that does not fit the individual or others. In a group setting, role acting is used as a teaching strategy. The challenge might be briefly performed out in class so that the student can relate to the characters.

2.9.9   Inquiry Method

With the inquiry approach, students create issues, plan experiments, gather evidence, then analyse it to come to their own conclusions. Four requirements must be satisfied by the inquiry learning approach: clarity, appropriateness, accuracy, and complexity (Chakim & Andayani, 2020). This method is student-centred since it emphasizes utilising questions to help students learn how to absorb information and solve problems. Confirmation inquiry, organized inquiry, guided inquiry, and open inquiry are the four forms of inquiry that make up this methodology. The goal of inquiry-based learning is to help students become more adept at using Bloom's Taxonomy to analyse, synthesize, and evaluate knowledge (Briggs, 2019).

The role of the lecturer when using the inquiry learning method is to be a guide and a facilitator. A facilitator motivates students to ask meaningful questions (Briggs, 2019). The lecturer's responsibility is to allocate learning tasks to students or permit students to choose their area of work. Through the inquiry method, students are oriented towards guidance, and it is the lecturer's guidance that gives students clear instructions and understanding of the concepts of the lesson. Guidance may come in the form of questions clarifying what is expected of them. Thereafter, the lecturer gradually lessens directing students so that they can learn to work independently in solving problems (Chakim & Andayani, 2020).

2.9.10 Cooperative Learning

Cooperative teaching is described as instruction that emphasises the students working in diverse groups to accomplish a shared objective. It describes instructional techniques whereby student pairs or small groups collaborate to accomplish a common objective. Teams of students collaborate to complete tasks, complete assignments, solve issues, and reach shared learning objectives in order to maximise individual and group success. A student-centred, active learning strategy called cooperative learning employs organised scenarios where small groups engage in a non-competitive way to achieve a common objective (Sandi-Urena, Cooper, & Stevens, 2012). As a result, cooperative learning gives students greater influence over their education (Mentz & van Zyl, 2018).

The aim of this cooperative learning is for students to interact with other group members in order to optimize their own knowledge. By using this technique, students move from a passive to an active state of learning, which enhances their academic achievement. Due to their active involvement in decision-making through discussion and cooperative work, students feel free to share their ideas and become more sociable (Markoglou, 2021). Through their participation in a group project, the cooperative learning technique strengthens the bonds between students, boosts their self-confidence, cultivates a spirit of collaboration, and improves their academic achievement (Abio *et al.*, 2019). Additionally, when students develop a good self-perception and experience acceptance from others, the attitude of collaboration lessens students' competitiveness, criticism, and rejection.

Students use what they already know to create new meaning. This suggests that students bring information from their prior experiences to learning circumstances, and that this knowledge impacts the new and modified knowledge they will create from new learning experiences. Students participate actively in this process, assess the consistency between their past knowledge and new information, and then adjust their understanding in light of their findings (Bada & Olusegun, 2015)

2.10 CONCLUSION

In this chapter, the theories underpinning this study, constructivism and social constructivism, were broadly discussed. The concept of teaching and learning and the teacher-directed, and student-centred methods were explained to give a clear overview benefits and pitfalls of teaching and learning strategies and the benefit of using a cooperative learning strategy in Business Education. The next chapter will elaborate on the contextualisation of cooperative learning as a teaching method and a learning approach in a culturally diverse classroom.

CHAPTER 3

COOPERATIVE LEARNING AS A LEARNER-CENTRED APPROACH TO TEACHING AND LEARNING

3.1 INTRODUCTION

There are three components that make learning in the classroom meaningful and those are lecturers, students, and curriculum. By selecting a teaching and learning approach that corresponds with the lesson's content, lecturers may help students achieve their learning objectives more effectively through the planning and organization of the teaching process (Arinda, Wilujeng & Kuswanto 2019). In the previous chapter, the researcher presented the theoretical framework through the explanation and interpretation of theories underpinning this study and concepts. Thus, the relationship and the appropriation of the theories and the overall study would be aligned.

This chapter focuses on cooperative learning as a learner-centred approach to teaching. Specifically, the chapter investigates the historical background of cooperative learning and includes an exploration into the purpose of cooperative learning, principles of cooperative learning and types of cooperative learning, cooperative learning methods, the benefits of cooperative learning, the role of the lecturer and the role of students when working in groups and the pitfalls of cooperative learning.

3.2 HISTORICAL BACKGROUND OF COOPERATIVE LEARNING

In the 1960s, individualistic and competitive learning techniques were the predominate teaching strategies, therefore cooperative learning (CL) had not captured the interest of the scholars. Cooperative learning is now a key educational strategy used in colleges as well as primary and secondary schools (Johnson & Johnson, 2008; Yassin, Razak & Maasum, 2018). In the first century, cooperative learning was regarded as peer work. Nevertheless, there was evolution in the 18th century as schools opened during that time, practised teaching using peer learning groups. In the

19th century, the number of schools grounded on group work learning expanded to other countries and the United States. As stated by Johnson *et al.* 1991 as cited by Yassin *et al.* (2018:642-643), *According* to Johnson *et al.* (1991), cited by Yassin *et al.* (2018:642-643), Colonel Francis Parker and John Dewey were two influential individuals who promoted the use of group learning and invited thousands of visitors to observe its use, which helped to build the practice's reputation in American schools. Peer work was the sole method available to teachers in the 1960s to address the need for social integration in the classroom and help minority students to achieve higher academic standards (Yassin *et al.*, 2018).

Accordingly, Robert E. Slavin introduced cooperative learning in the 1970s, which eventually evolved into a teaching philosophy and strategy method (Zhuang, Yonggui & Lin, 2020). In this regard, cooperative learning influenced teaching and learning procedures in the classroom in the 1970s when researchers started looking at cooperative learning models (Ahmed & Bedri, 2017).

3.3   DEFINITIONS OF COOPERATIVE LEARNING

According to Olesen and Kagan (1992), cooperative learning is a classroom activity in which students communicate knowledge in a socially regulated way, and each student is simultaneously accountable for both their own and the other students' mastery of the content. According to Vermette (1998), cooperative learning is a team activity in which students of all levels collaborate to master a body of information (Yassin *et al.*, 2018).

In addition, Artzt and Newman (1990:448) define cooperative learning as "an strategy that includes a group of students working together as a team to solve a problem, complete a task, or attain an objective goal." According to the definition, cooperative learning is a strategy that entails small groups of students working as a team to resolve issues and finish a job in order to accomplish a goal. According to a few of the definitions given above, cooperative learning places a strong focus on teamwork among students working in groups. This is founded on the assumption that students find it simpler to identify and grasp a concept of facts if they discuss the problem with each other (Silalahi & Hutauruk, 2020). In every institution, teams are essential for improving performance and managing change, but this is especially true in the

extremely unstable, fast evolving business world of today. Institutions are aware that creating a cohesive and motivated team is an essential first step in achieving goals in the long run (Clark & Paulsen, 2016).

CL is a student-centric approach where with the help of small teams, students in CL learn how to work together to solve issues (Munir, Baroutiana, Young & Carter 2018). In a cooperative classroom, groups typically include four to six participants, with group members being diverse in terms of academic ability, religion, gender, and ethnicity (Silalahi & Hutauruk, 2020). The lecturer often chooses the group members so that there may be a mix of males and females, students from different racial groups, and people with various levels of skill in each group. This enables students to learn from one another's perspectives and gives them practice adjusting to classmates who are different from them (Vakilifard, Bahramlou & Mousavian, 2020). Katawazai and Saidalvi (2020) maintain that students can be divided into small and large groups depending on the circumstances of the classroom to discuss and collaborate on a shared objective.

CL is the approach that emphasises learning through collaboration. This implies that the lecturer facilitates whilst the students take charge and work collaboratively to managing their own learning (Vakilifard *et al.,* 2020). students in a group and sitting them together in a classroom, as well as informing them they are a cooperative group and encouraging them to work together, will not create a cooperative group. Instead, the lecturer should function as a facilitator by defining goals, grouping students, and assigning each student a specific job inside the group. They should also provide students with cooperative learning-based learning activities, monitor group activity, and evaluate collaboration (Ding, Li, Piccolo, & Kulm, 2007).

More importantly, CL emphasizes cooperative learning among students who study in small groups. It also involves the way lecturers build relationships and cultivate a specific learning environment while utilizing techniques and strategies to encourage maximum participation and engagement from all students (Ferguson-Patrick, 2020). Similar to this, Slavin (2011) describes CL as a type of educational approach in which students are placed in small, organized groups with the intention of cooperating, supporting one another, and attaining their group objectives together. According to

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Yusuf *et al.*, (2019), CL focuses on students' natural tendency to collaborate (Katawazai & Saidalvi, 2020)

It may be argued that CL has marked a turning point in the drive to strengthen social skills, improve learning environments, and engage students in the classroom. Students are accountable for both their own learning and that of others. This implies that one's achievement may contribute to the success of others. The joint effort of students within small groups and the drive to maximise their own learning and that of their peers, considers the socio-cultural theory of mind. According to the notion, human cognitive talents begin to develop through interpersonal social contact before eventually becoming intrapersonal. To put it another way, when students collaborate, the more capable students serve as a mediator between the learning activity and the less capable students, assisting them in learning and growing (Vakilifard *et al.,* 2020:2-3). Based on the definitions above, students are accountable for dual tasks; first, is to comprehend the learning objectives, and second, is to ensure that the other group members comprehend the assigned work (Yassin *et al.*, 2018:644).

In this regard, Johnson and Johnson (2009) as significant pioneers in this field, define CL as a pedagogical method that fosters active involvement and group collaboration in pursuit of a particular objective. A high-performance group is an effective group that outperforms all reasonable expectations given its mettle. They distinguish four types of groups: *a pseudo group* (members must work together but are not interested), *a traditional working group* (members accept working together but believe they will be evaluated as individuals), *an effective group* (members are committed to their work to achieve their desired goals and that of the other team members), and *a high-performance group* (a group that is effective but exceeds all reasonable expectations given its mettle) (Havenga & van Wyk, 2017).

Foyle (1988) presents the following five phases of cooperative learning that occur when students get in pairs or small groups:

a. The *engagement phase* refers to the lecturer organising and setting up the classroom ready for the learning activity that is to take place.
b. In the *exploration phase*, students work on their allocated activities and seek on the ideas and information

c. The *transformation phase* is where students gather their thoughts about the information.

d. The *presentation phase* is a time when students present their information to the other students.

e. The *reflection phase* allows students reflect on what they have learned, identify strengths and work on areas that need improvement (Arunsirot, 2021; Ding *et al.,* 2007).

3.4   THE AIM AND PURPOSE OF COOPERATIVE LEARNING

According to Johnson, Johnson and Holubec (1993 as cited by Silalahi & Hutauruk, 2020), the aim of CL is to enrich student learning by encouraging students to develop skills that help them to work cooperatively and attain joint goals in small groups. Furthermore, CL deepens student understanding of the learning content and sharpens their collaborative and leadership skills. The ultimate goal of CL is to achieve the predetermined level of competence or mastery in the field being studied through group efforts (Johnson, Johnson & Smith, 1991). Cooperative learning's advancement strives to promote learning outcomes, diversity acceptance, and the growth of social skills. The following subsections provide explanations of each of these goals.

3.4.1   Achievement of Learning Outcomes

Cooperative learning not only focuses on social goals but also on improving student performance in the classroom. Haryono (1995 as quoted by Silalahi & Hutauruk, 2020), argues that both high and low achieving students gain from collaborative learning (CL) when they work together to complete academic tasks.

3.4.2   Acceptance of Individual Differences

The second significant outcome of CL is the acceptance of students who differ in terms of ethnicity, religion, culture, socioeconomic status, and talents. Hence, it offers opportunities for students from various backgrounds to collaborate on activities related to shared learning while also gaining access to cooperative incentive systems (Silalahi & Hutauruk, 2020).

3.4.3   Development of Social Skills

CL equips students with the skill of collaboration, thus being a social being who can work and at the same time live in harmony with others. Knowing how to collaborate can be of benefit to student relationships such as with friends and families and the communities in which they live (Silalahi & Hutauruk, 2020). Cooperative learning differs from other types of learning because of how students and lecturers collaborate rather than just being grouped together. In this method, the lecturer aids the students in acquiring social skills so they may interact with one another more politely and successfully. That is, diverse students work together to attain a similar objective rather than competing with one another or acting independently (Vakilifard *et al.*, 2020).

3.5   THE NATURE OF COOPERATIVE LEARNING

The nature of cooperative learning is learning by doing and elaboration. The learned material is often retained for a longer amount of time by students who either provide or receive an explanation during discussion. For this reason, in cooperative settings, students learn better when they provide sufficient justification to their classmates (Van Dat, 2016). As observed by Vygotsky (1978 as quoted by Erbil, 2020), teaching and learning may be genuine when learning assignments are based on real-life events, are significant to the students, and students should also feel the desire to acquire that subject (Erbil, 2020).

This strategy highlights how the teaching should be student-centred. The lecturer serves as a facilitator and guide in a student-centred pedagogy, believing that students should be trusted to take responsibility of their own learning. Knowledge is shaped when students become actively involved in their new learning activities whilst blending them with their previous experiences (Vakilifard *et al.*, 2020:3. For students, lecturers, education planners, managers, and administrators, the pursuit of a more beneficial and active teaching and learning strategy is equally crucial (Gupta & Pasrija, 2012; Johnson & Johnson, 1991).

As compared to group work, with CL groups, the directive switches among group members where each of them provides information and instruction, instead of one student taking the leading instructional role. This creates a more core regulatory and

balanced situation during learning particularly as there are more participative students who are influential than less participative students (Menges & Synicki, 1991). For this reason, students should learn to cooperate (Fernandez-Rio *et al.,* 2017).

3.6   PRINCIPLES OF COOPERATIVE LEARNING

The principles of cooperative learning include positive interdependence, individual accountability, face-to-face interaction, communication between members and evaluation of group processes each of which are discussed below.

3.6.1   Positive Interdependence

The first element of CL is *positive interdependence* (PI) which holds the idea that individual members need to participate to complete the allocated task. The commitment and participation of each team member leads to the achievement of goals (Hashimoto, 2020; Johnson & Johnson, 2009). Moreover, each group member is responsible for the success or failure of the group, therefore all group members should feel favourably obligated to and dependent upon one another (Silalahi & Hutauruk, 2020).

3.6.2   Individual Accountability

The second element of CL is *individual accountability* (IA) or *individual responsibility*, wherein each group member is responsible for mastering the allocated task thereby realising that their contribution must be made in relation to the group's objective for the group to succeed (Hashimoto, 2020; Silalahi *et al.,* 2020). CL helps individual members to develop these skills since each student is held individually accountable to do their share of the work. The shift of leadership amongst team members is needed to manage each individual and because each member is held accountable (Cloud, 2014).

3.6.3   Face-To-Face Interaction

The third component of CL calls on students to collaborate as a group to support one another's achievement. The interactions that take place through discussion are of benefit to all group members (Silalahi & Hutauruk, 2020). According to Johnson and Johnson (1999), active participation in discussion, involvement, encouragement and

commending each other's achievement are crucial for CL to be effective (Hashimoto, 2020).

3.6.4 Communication Between Members

In the fourth element of CL, *communication skills* between group members are crucial so that students attain their goals and improve communication skills (Silalahi & Hutauruk, 2020). According to Johnson and Johnson (1999), leadership, decision-making, trust-building, communication and conflict-management skills must be taught just as intentionally as the subject matter. Hashimoto (2020), recommends that students should be socially conscious of one another, need to ask for clarity where necessary, listen attentively, speak properly, ask for assistance, make suggestions, check understanding, keep the group on task, ask about feelings, disagree politely and give reasons.

3.6.5 Evaluation of Group Processes

The last of the five key elements is *group processing* (GP). The lecturer should evaluate group processes to know the outcome of group work processes. In other words, group effort is what makes group learning successful (Silalahi & Hutauruk, 2020). This involves conversation amongst team members regarding their previous and the current encounters about the topic and discussing how they are performing as a collective. Adequate time should be allocated to students to reflect on what they have acquired and recommend for areas that need improvement (Hashimoto, 2020).

In general, CL encourages group processing, effective use of social skills, positive interdependence, individual accountability, and primal interaction, all of which are very common in the South African teaching and learning setting.

3.7 TYPES OF COOPERATIVE LEARNING

Formal cooperative learning, informal cooperative learning and cooperative base groups are all types of cooperative learning and are discussed in the subsections below.

3.7.1   Formal Cooperative Learning

This type of cooperative learning continues from one class session to many in weeks to accomplish agreed goals and fulfil mutually assigned activities, and it is more directly integrated into the curriculum. Heterogeneous groups consist of three to five students. Heterogeneous groups refer to groups comprising of students different from one another in several significant respects such as age, socioeconomic background, skills, abilities, values and experience. In formal CL, the lecture's role is to make pre instructional decisions, set tasks, monitor groups, encourage, intervene when necessary but not to teach students. On the other hand, students are expected to practise and reflect on what they have learned and consult with their peers first when in need of assistance, rather than the lecturer. They are also advised to share ideas and information and at the same time be accountable towards accomplishment of group goals (Hashimoto, 2020; Yassin, *et al.,*2018). The pedagogy known as CL encourages students to actively generate information during the learning process rather than merely absorbing it (Van Dat, 2016). Hence formal CL urges students to explain verbally to each other what they are learning. Despite how excellent an idea is, verbal communication is of greater importance since students need to share it collectively to reach a more thorough understanding (Hashimoto, 2020). Johnson and Johnson (1999 as mentioned by Cloud, 2014) is of the view that formal CL is most effective for lengthier project types like presentations or even writing a paper over a week.

3.7.2 Informal Cooperative Learning

As the name implies, informal CL uses unstructured groups of three to five students each that are formed in class and continue anything from a few minutes to an entire class hour (Cloud, 2014). The group of three to five students meet in class to share their knowledge and experiences over what was discussed in the lesson and emphasise any gaps in knowledge. Following the lecturer presentation, students engage in the allocated task within their ad hoc groups (Hashimoto, 2020). These group exercises might run anything from a few minutes to an entire class period. Informal CL can be effective and beneficial when the subject matter is brief or can be covered in a single class time. Students may acquire ideas considerably more quickly

by using informal cooperative learning, which forces a greater grasp of the allotted task in a short amount of time (Cloud, 2014; Johnson & Johnson, 1999).

Furthermore, lecturers utilise this kind of CL to improve direct instruction including presentation, discussions, and summarising. Business students may be expected to discuss a case study or show calculations and provide the correct answer. The grouping, nevertheless, is just momentary and does not last for a long time (Yassin *et al.*, 2018).

3.7.3   Cooperative Base Groups

Base groups should be the first to be created to help foster prolonged relationships between group members that last through their university period (Cloud, 2014). In so doing, team members will show a kind of commitment, provide support and encouragement to their peers. Base groups enable students to get help from other members especially when they plan to excel and complete their course successfully. The socially isolated students improve social skills with other students when allocated groups (Yassin *et al.*, 2018). Cloud (2014) adds that base groups may help both the lecturer and the students in the learning process and can be used to track students' progress throughout the course.

3.8   COOPERATIVE LEARNING METHODS

Jigsaw was created by Elliot Aronson and his collaborators at the University of Texas in Austin, who invented cooperative learning techniques. This was followed by a number of innovations, including the Learning Together technique developed by David Johnson and Roger Johnson at the University of Minnesota and the Teams-Games-Tournament and Student Teams-Achievement Division techniques created by David DeVries, Keith Edwards, and Robert Slavin at the University of Johns Hopkins (Yassin *et al.*, 2018). Other innovations include Accelerated Instruction (TAI), Cooperative Integrated Reading and Composition, and TAI (CIRC). Shlomo and Yael Sharan came up with the Group Investigation (GI) technique and Spenser Kagan developed Co-Op learning method. Johnson and Johnson developed Learning Together (LT) and Creative Conflict (CC); Donald Danseareau introduced Scripted Student Dyads (SSD), Lawrence Sherman developed the student team project (STP) and Dyadic Essay

Confrontation (DEC); Elisabeth Cohen developed Complex Instruction (CI); John Fantuzzo introduced Reciprocal Peer Tutoring (RPT) and lastly, Emmy Pepitone developed Co-Action and Co-Labour (C&C) (Masoabi 2015:87).

The use of cooperative learning before 1970 was limited to universities and colleges. Teachers in schools eventually took notice of this and began utilising these strategies in both primary and secondary settings. Academics began to pay attention to the use of cooperative learning at institutions of higher learning only after the 1990s (Johnson *et al.*, 1998; Yassin, *et al.*, 2018). There are several cooperative learning methods available for lecturers to utilize, including think share pair, group research, peer tutoring, teams' games-tournaments, and student team achievement divisions (STAD) (GI).

There are seven different kinds of cooperative learning strategies, according to Slavin (1995), cited by van Wyk (2015). These include Students Teams-Achievement Division, Teams Games Tournaments (TGT), Team Assisted Individualization, Cooperative Integrated Reading and Composition (CIRC), Model Group Investigation (Gi), Jigsaw Method, and the Co-Op Method.

3.8.1   Students Teams-Achievement Division

In the Students Teams-Achievement Division (STAD), students are divided into four-member learning teams that are diverse in terms of performance level, gender, and ethnicity. Students collaborate within their teams after the lecturer has presented the lesson to ensure that each member of the group has understood the content (Slavin, 2010). The STAD method is one such CL-teaching and learning method, which creates a conducive learning environment that fosters learning, joint acquisition of content and mutual explanation. STAD adjusts the traditional way of teaching by putting the students at the centre of the learning process and affording the lecturer the opportunity to take a back seat and facilitate so that the students construct new knowledge.

3.8.2   Teams Games Tournaments (TGT)

Slavin (1995), cited by van Wyk (2015) developed the TGT, a learning strategy that blends learning groups and team competitions that may be utilised to increase understanding of communication and learning concepts. Students in small groups are urged to assist one another in completing a given task. Students participate in cooperative TGT by playing academic games in small groups with their teammates in order to earn points that will contribute towards the team's overall score. Members of a certain group would assist other team members in carrying out a specific task. Students are required to complete the task worksheet and confirm that everyone involved has understood the learning task. Each player on each team would compete independently during the competition, with no assistance from their teammates (Veloo, Md-Ali & Chairany 2016). During the tournament, each team member would be playing according to their own abilities without the help of other team members (Veloo, Md-Ali & Chairany 2016). TGT, Şimşek and Baydar (2019) states, features cooperation within groups and competition between groups. The competition ensures fair possibilities for achievement by pitting high achievers from one team against those from other teams and poor achievers against other low achievers from other teams (Masoabi, 2015). The TGT method holds positive effects on academic achievement, attitude towards the module, anger control, coping with depression, satisfaction in working together, individual and social reliance and peer relations (Şimşek & Baydar, 2019).

3.8.3   Team Assisted Individualisation

With the use of four-member mixed ability teams and certificates for top performing teams, the Team Assisted Individualisation (TAI) system promotes the same team member composition as STAD and TGT. However, TAI mixes cooperative learning with individualized instruction, whereas STAD and TGT employ a single space of instruction for the class (Slavin, 2010). According to Slavin (2005 as cited by Lestari & Mulyono, 2019), the TAI learning method portrayed through group work, encourages active learning and success towards lesson objectives. The method enriches deep learning when used in mathematics classes, as compared to other cooperative learning models. Students are offered opportunities to effectively share their knowledge in groups. The success of TAI learning can be supported by recitation

whereby students receive group assignments and then are expected to report the results in the next lesson.

3.8.4 Cooperative Integrated Reading and Composition (CIRC)

CIRC is a learning method stressing reading and writing activities. The learning method promotes students' active learning through reading, discussion and summarising context (Mubarok & Sofiana, 2017; Ristanto, Zubaidah, Amin, Fatchur & Rohman, 2018). This method is in accordance with CL since it demands students to engage in learning activities that call for collaboration, sharing, and problem-solving as well as progressive learning objectives, such that they recognize narrative parts in pairs. These approaches are distinct from conventional interaction because they put a greater emphasis on learning outcomes than on tasks that are productive (Mubarok & Sofiana, 2017). Slavin (2010) believes that the CIRC provides students with the knowledge, understanding and abilities for their benefit and to impact positively towards the communities in which they live. The steps in CIRC learning, as stated by Slavin (1986), starts with the students being divided into a variety of mixed groups. After that, each group reads a different article or book, reciting the words aloud, comprehending the meaning of the words, repeating the story, and spelling the words (Ristanto, *et al.*, 2018; Wahyuningsih & Citraningrum 2019).

3.8.5 Model Group Investigation (GI)

The GI learning approach is thought to be ideal for application in the learning process since it may enhance students' scientific working abilities. Additionally, using Group Investigation (GI) learning methods helps make the most of the school's allotted time (Arinda *et al.*, 2019). The learning method fosters group learning where students work and communicate effectively amongst themselves through group processes for shared benefits and group success. This is made possible, as students are allocated to advanced, intermediate or beginner groups (Sojayapan & Khlaisang, 2020).

3.8.6 Jigsaw Method

The Jigsaw method was developed by social psychologist Elliot Aronson in 1971. The goal was to break down prejudices and discrimination among peers. The Jigsaw technique emerged so that students may work in groups to achieve the course goals.

The intent of this approach is to improve all students' listening, involvement, and empathy abilities. The lecturer prepares and arranges classroom activities thereby enabling students to help their peers and maintain positive relationships to accomplish their desired goals. Students are divided into groups, with each member assigned a task, and the group reassembles to share knowledge and effectively complete the work. Furthermore, the Jigsaw technique decreases racial friction, promotes better learning, and boosts student motivation (van Wyk, 2015).

3.8.7   Co-Op Method

One of the cooperative learning models, as stated by Utami and Rahayu, (2021) that is based on task specialisation, is the Co-Op learning method. In a Co-Op classroom, students are positioned in groups and allocated tasks that are suitable for group discussions to develop their understanding and learning experiences. The lecturer sometimes awards the students a chance to select their own tasks and seek answers. During the Co-Op experience, students improve on their current knowledge and skills of a subject matter, interpersonal skills and time management. This is because the learning experience is integrated into the workplace, is combined with students participating in a Co-Op which affords the students an opportunity to develop themselves not only as professionals, but also holistically (Arthur & Guy 2020). Class discussions, group formation, selection of learning tasks, selection of learning tasks, preparation of small topics, presentation of small topics, preparation of team presentations, team presentations, and evaluation are all phases in the Co-Op approach (Utami & Rahayu, 2021:72).

3.9   BENEFITS OF COOPERATIVE LEARNING

The benefits of cooperative learning are many and include social interaction and support, equal participation, shared responsibility, positive interpersonal relationships, communication skills, motivation to achieve, critical thinking, self-esteem, lowering anxiety and time on task.

3.9.1   Social Interaction and Support

Interaction arises when objects influence each other in a shared event. Interaction determines the flow and the consistency of the learning processes and activities

carried out in the classroom. Student interaction in this context refers to mutual communication between students, exchanging information, knowledge, thoughts or ideas about the subject matter (Sholikh, Sulisworo & Maruto, 2019).

According to Vygotsky, the social contacts that students have with their peers and lecturers help them learn. In these interactions, students exchange the newly acquired information between themselves. Group members acquire the information and learn first-hand, by way of doing (Erbil, 2020; Vygotsky, 1978). It is important to highlight that each individual member has a distinct role to play and that students actively help one another and collaborate to finish the learning activity (Zhuang *et al.,* 2020) (Zhuang *et al.,* 2020). While working together, each student is held accountable for their own success and that of the group, with the lecturer intervening, if needed (Vakilifard *et al.*, 2020). (Sholikh *et al.*, 2019).

Although individual work has its advantages, Cloud (2014) contends that CL is superior, particularly when it comes to social connection. Students may discover that it is simpler to ask a question of peers than to the lecturer in front of the class since social contact between members of a specific group helps overcome doubts, fear, and insecurity. Vakilifard *et al.*, (2020) stated that social skills should be taught and that they include appreciating other students' involvement, inviting others to join, and maintaining a composed environment of interactions.

Transmission of ideas is another benefit of CL. A much faster and more efficient flow of ideas is made possible by social interactions between members. Through group activities, more knowledgeable group members can help less knowledgeable group members (Cloud, 2014). In order to effectively teach and learn Business Education, well-organized learning spaces that encourage student interaction are essential (Tekbiyik, 2015).

3.9.2   Equal Participation

Engagement is the most important invention in the interest of learning needed by students as they are a highly social, interpersonal and cultural species (Ferguson-Patrick, 2020). Students who participate actively in CL lessons are more likely to experience deep learning (Munir *et al.*, 2018). The main goal of CL is to create

stimulated sharp-minded students who are focused on objectives, and this can be achieved when everyone in the group participates. Each member has a responsibility and at the same time must ensure that other group members have understood the learning task. All group members have obligations that force them to participate, which fosters a culture of involvement. To put it simply, students are compelled to actively participate and learn rather than being passive participants (Yassin *et al.*, 2018). Munir *et al.,* (2018) add that students who are not passive, learn how to manage their own learning rather than expecting to be spoonfed. They share knowledge and learn from others in an organised and structured way, while the lecturer focuses on stimulating, coordinating and encouraging interactions among students. Since team members uncover knowledge themselves, they become acquainted with their progress and they are able to compare them with that of peers. In addition, the bonus is that students come to know the learning content prior to the Business Education lesson (Munir *et al.*, 2018).

3.9.3   Shared Responsibility

The most crucial aspect of CL is that students collaborate in small groups to help one other achieve a common goal (Er, 2017). According to Johnson and Johnson (2002), each student is individually responsible and has the opportunity to excel in the subject matter as well as having a shared responsibility to assist other members to understand the content and achieve the goals (Yassin *et al.,* 2018). Er (2017) refers to the above as inner independence or goal dependence, where students work on their allocated task and teach each other. Everyone in the group encourages each other and is responsible for each other's learning, to make the best of their own skills.

According to Crandall (1999) and Dörnyei (1997 as cited by Yassin *et al.*, 2018), the support within the group increases motivation and debilitating aspects such as shyness and insecurities. Rewards should be part of the CL process so that students maximise their efforts to understand and motivate each other for the success of the group (Yassin *et al.,* 2018).

3.9.4   Positive Interpersonal Relationships

In a wide range of courses, CL is significant and advantageous. However, if lecturers do not follow procedures appropriately, especially when students socialize for the first

time in classrooms, diversity can lead to social issues and conflict. Newly arrived students and those who are new to social learning may find it difficult to adjust. Team members are included in learning when there are better interpersonal connections in the classroom. Diversity is recognised as a learning resource when lecturers actively involve all students by identifying individual skills and assigning them responsibilities in groups. This alters the circumstances that affect students' participation in the classroom. To have this fairness in a CL classroom is essential (Ferguson-Patrick, 2020).

Students' cooperative inclinations and social competence can be increased by CL experiences in a Business Education class. Positive relationships are developed in groups when students support one another and develop their ideas. Additionally, CL classes might help students become more tolerant. Students grow more tolerant of classmates they may not have previously been fond of as they learn to respect the talents of others and as they are favourably connected in their learning assignments. In such classrooms, empathy and the capacity to trust other team members are fostered and strengthened (Ferguson-Patrick, 2020).

The group's potential for conflict, dominance, and power battles are recognized to be avoided by CL. This is so that the students' interpersonal skills may be improved via the use of CL activities like "Think Pair Share," "Two Stay Two Stray," "Numbered Head Together," and other supporting systems (Nurmila, Humaerah & Atikah, 2020).

Contrarily, there may be student opposition to the changes that the CL method seeks to implement; this resistance is typically brought about by deeply ingrained personality qualities. Personality traits are understood to be relatively enduring features of a person, often inherited and seldom modified by behavioural modification. The generalized neuropsychic system that underlies a person's personality feature is designed expressly to direct human behaviour. The goal here is to observe a change in students' behaviour pattern during the CL intervention, not to alter the students' personality qualities (Han & Son, 2020).

3.9.5 Communication Skills

The academic performance of students, including those who are pre-service teachers, is positively impacted by CL because it helps students' speaking and communication abilities. Since students watch their peers' language usage, CL has a significant impact on the development of communication skills and the acquisition of academic English (Yassin *et al.,* 2018).

The significance of interpersonal and communication skills is emphasized by Socratous (2014, quoted by Han & Son, 2020), who also suggests that all students should be encouraged to develop these abilities when interacting in groups. Universities have committed to provide more courses that include interpersonal skills modules because they believe that future companies would demand that students have strong interpersonal skills.

3.9.6 Motivation to Achieve

In order to advance their abilities and knowledge beyond their current level of mastery, Vygotsky (1978) thought that students should be continually pushed with learning activities. As a result of their prior successes, students are inspired to participate and gain confidence in this way. This is in accordance with Vygotsky's zone of proximal development (ZPD), which may be defined as the separation between the level of actual development and the level of prospective development (Gemeda, 2015)

Three components are emphasized by motivational approaches on CL: social dynamics, goal systems, and reward structures. In CL, the goal structures establish a standing whereupon the individual members will succeed solely if the group has achieved its desired goals. For this reason, team members make every effort to foster and support each member's understanding of the allocated task. The reward structure of CL is mostly associated with group rewards, which implies that the performance of the group is determined by the totality of each other's individual achievements or the aggregate of the group (Ning & Hornby, 2014). According to Crandall (1999 as quoted in Yassin *et al.,* 2018), CL promotes group advancement through rewards for the winning team. Students are said to be motivated to work hard by this extrinsic factor.

If CL is goal-oriented or concentrated on problem-solving tasks, intrinsic motivation is increased.

In addition, CL creates a fun learning environment that encourages students to participate and put in a lot of effort in their studies (Silalahi & Hutauruk, 2020). For increasing motivation, Yadin (2015) acknowledges that marks on progress should be made accessible to students so that they compare their performance to the class average. The motive is for students with lower-than-average grades to be motivated and dedicated to achieving more in their next task (Yadin, 2015). Building group cohesion and having fruitful learning experiences are related to group dynamics. CL principles provide a strong focus on the creation of a welcoming, accepting, and supportive learning atmosphere where students feel comfortable expressing their own opinions and are highly driven to meet the objectives (Ning & Hornby, 2014).

Significantly, a motivated lecturer steers motivated students and effective performance. Students' growth might be hampered by lecturers who are uninspired to teach or dissatisfied with their careers. Arguably, lecturer's satisfaction has a significant impact on their performance, which in turn impacts how well their students learn (Gemeda 2015).

3.9.7   Critical Thinking

According to Clark and Paulsen (2016), critical thinking is a reasoned, intentional, and introspective approach to problem-solving and question-addressing when there is no sufficient evidence or information to draw a firm conclusion, but the problem or question may be addressed. For the goal of determining what to believe or do, critical thinking can be applied to contesting a claim or position. Critical thinking involves analysing information obtained through reflection and is considered a systematic evaluation or opinion with reasonable standards (Sholikh *et al.,* 2019). The ability to think critically involves three components, namely, the attitude used to ponder wisely on a problem and subject that is within one's experiences, logically using knowledge obtained from a method of inquiry and utilising specific skills in applying these methods.

A lecturer in the 21st century should keep abreast of current developments and be able to produce knowledgeable students that have developed critical thinking skills. Those students are better at solving problems, making decisions, analysing opinions and conducting research. The better understanding of Business Education can be obtained through the practice of critical thinking skills in the learning process. Assessing student success in those practices can be done through gauging responses and choices in solving problems (Sholikh *et al.*, 2019). Tekbiyik (2015) is of the opinion that lectures often place more emphasis on surface learning, a lower order level of thinking than on deep learning, a higher order level. Critical thinking is crucial for student teachers to learn in order to grow intellectually confident. Higher order skills should be used by student teachers to examine, assess, and develop their critical thinking abilities. Higher order cognitive abilities like critical thinking prepare students to overcome obstacles they may face in their personal and professional life (Clark & Paulsen, 2016).

Poor content knowledge and misconceptions of the content may negatively influence the discussion and decision-making processes. In most cases, knowledge acquired in informal learning environments especially media, hinder logical reasoning based on risk assessment, critical thinking and reasoning (Tekbiyik, 2015).

In CL, group discussions are aimed at making it possible for students to take different approaches to learning and put forward arguments and counterarguments to reach a sound conclusion. Adeymi (2008) as cited by Tran and Lewis (2012), stated that because students take into account various ideas when completing their learning assignments, the cooperative setting improves the usage of problem-solving, critical thinking, communication, and interpersonal skills. There are twelve pointers of critical thinking skills, which are summed up in five stages, namely fundamental clarification, decision-making assumptions, inference, advanced clarification, and integration advanced clarification and supposition and integration (Sholikh *et al.*, 2019).

3.9.8 Self-Esteem

In that CL approaches are at most equally successful for all skill levels and effective for all ethnic groups, Slavin's findings are consistent with those of Brady and Tsay (2010). The ethnically and intellectually challenged students who participate in CL

have more pleasant interactions and friendships because CL raises self-esteem and self-concept (Ayana 2019).

Similarly, Tran and Lewis (2012) pointed out that CL classrooms enhance self-esteem more than competitive or individualistic learning environments. Students' self-esteem increased as a result of participating in cooperative activities in the research done by Kilic (2008) and Bertucci *et al.*, (2010). The results support those of earlier studies (Kose, Sahim, Ergun, and Gezer, 2010; Thanh-Pham, 2011; Zain, Subramaniam, Rashid, and Ghani, 2009), which show that CL fosters high-quality learning, positive cohesion among participants, higher self-esteem in learning, and positive feelings toward the learning tasks.

3.9.9 Lowering Anxiety

The use of cooperative learning methods in the classroom aids students in reducing their anxiety levels (Yassin *et al.*, 2018:646). CL may prompt psychological elements which result in student being interested and more active. This is due to a sense of feeling of unity group, enthusiasm in completing the activities and feeling brave enough to express opinions (Silalahi & Hutauruk, 2020).

There is a distinction to be made between asking students to answer to a question before the learning process and doing so following group discussions. When students work in groups, they are less likely to be perplexed or nervous and are more inclined to feel comfortable talking with their colleagues about the learning activity. Group discussions cultivate student skills and confidence giving them the courage to participate during the lesson. Furthermore, self-confidence and self-assurance help to reduce anxiety, which ultimately increases engagement (Yassin *et al.,* 2018:646-647).

3.9.10   Time on Task

Both students and lecturers can profit greatly from cooperative learning. For instance, it helps students in developing their critical thinking and deep learning skills. Students learn interpersonal and communication skills that will likely be useful to them once they graduate. Lecturers can also observe and consider students' learning during CL class time. This is due to the fact that peer grading may reduce the workload for the lecturer

while also increasing the transparency of the marking process for the students (Munir *et al.*, 2018:27).

All things considered, the use of CL is critical for fostering friendships, fostering success and self-esteem, and facilitating communication in the classroom. This method is crucial because it promotes student collaboration throughout the course by giving them opportunities for cooperation and dependency (Er, 2017). One may argue that CL has marked a turning point in the drive to strengthen social skills, learning environments, and active learning in the classroom (Vakilifard *et al.*, 2020).

3.10   THE ROLE OF THE LECTURER IN A COOPERATIVE CLASSROOM

The lecturer-student joint discussion method that occurs in a CL classroom refers to the exchange and discussion between lecturers and students, by means of guiding the students to have a deeper understanding on knowledge of the subject matter (Zhuang *et al.,* 2020). It is important to highlight that cooperative learning does not negate the role of the lecturer. The lecturer should be present to plan for the learning tasks, divide the students into smaller groups and facilitate them throughout the lesson. Leaving the students alone without guidance makes them frustrated and as a result might not accomplishing the desired goals and lesson objectives. The primary goal of CL is to increase the level of benefit among all the students throughout the learning process thereby establishing an interactive environment where everyone participates independently at a high level by assuming the roles of both lecturer and student (Er, 2017). According to Özsoy and Yildis (2004 as cited in Almuslimi, 2016), the role of the lecturer in CL includes the following tasks:

  a.   To determine the objectives of the instruction.
  b.   To decide on the group size.
  c.   To divide the students into different groups keeping in mind the level of the students.
  d.   To make a proper arrangement for the class.
  e.   To plan the learning materials used inside the classroom to make the process of learning interdependent.
  f.   To give each student a role to make the process of learning interdependent.
  g.   To explain the learning work to the students.

h. To create positive objectives to make the process of learning interdependent.

i. To provide evaluation to the students.

j. To help the groups work cooperatively.

k. To explain the process of study to the students.

l. To determine the helpful behaviours for success.

m. To guide the students in terms of behaviour.

n. To help the work of the groups.

o. To gather the students to teach cooperatively.

p. To finish the learning session

q. To evaluate the performance of the students and the groups (Yassin, *et al.*, 2018:648).

3.11   THE ROLE OF THE STUDENT IN A COOPERATIVE CLASSROOM

In the learning process, based on the CL teaching and learning approach, students create an interactive atmosphere, where team members contribute individually towards group desired goals, by taking on the role of both lecturer and student (Er, 2017). In this case, the role of each student within the group can be one of the following:

a. Facilitator: is responsible for keeping the students on learning tasks.

b. Recorder: records the decision of the group and their answers.

c. Summariser: summarises the answers of the students.

d. Reporter: reports the ideas of the group to the other groups.

e. Timekeeper: is responsible for keeping the time and keeping the students on task.

f. Questioner: is responsible for asking questions.

g. Praiser: is responsible for encouraging the students by using praising words (Yassin *et al.*, 2018:648).

3.12   PITFALLS OF COOPERATIVE LEARNING

There are many emphases on CL and its benefits when carefully managed. However, CL also has challenges related to CL at all levels of education, particularly at university where varieties of problems could arise (Ayana, 2019). For example, the first time that

students are introduced to CL, they may be reluctant to assist each other and learn from one another and could address issues that are completely irrelevant for the allocated task. Instead, students found this an opportunity to gossip and talk about their personal affairs. According to Munir *et al.*, (2018), CL is a relatively new strategy and some students from particular cultures or academic fields may be more resistant to it than they would be to a typical lecture approach.

Gillies (2016, quoted by Munir *et al.*, 2018) contends that CL might hinder cooperation by fostering competitiveness inside or across groups. When certain cooperative learning practices are either ignored or not fully conveyed to students, CL can be difficult. Diving students into functional groups can be a challenging task for lecturers, but badly selected groups can produce two types of students: top students who do all the work and bottom students who do very little.

Slavin (1995 as cited by Silalahi & Hutauruk, 2020) argued that CL if not implemented properly, both high- and low-achieving students will perform below expectations, which would leave them disappointed. Therefore, it is crucial to guarantee that there is collaboration between the students whose level is superior since this would help team members by leading them to comprehend the lesson material or complete the assigned activity. This might be caused by the clever group members who are more dominating (Johnson *et al.*, 1993; Yassin *et al.*, 2018).

Thorough preparation and understanding from both the lecturer and the students are vital as lack of lecturer facilitation skills and student incompetence will not result in success (Silalahi & Hutauruk, 2020). CL is not simply group work but also a method of teaching and learning, and the results can be terrible if the incorrect dynamics are utilized or applied to the wrong kind of lesson. Due to various dynamics, managing groups presents a variety of difficulties. The fact that CL may be used with a variety of circumstances, resources, and projects makes it an excellent teaching and learning strategy that needs to be used more frequently in classroom education.

3.13   CONCLUSION

To sum up, cooperative learning has grown in popularity in the fields of education and research since it is one of the most effective approaches for the learning process. Cooperative learning has its own set of guiding principles since not all group projects qualify as cooperative learning.

The next chapter elaborates on the contextualisation of Jigsaw as a teaching method and a learning technique in a culturally diverse classroom setting. As a teaching and learning method, it was an approach the lecturer used to deliver the Business Education content to students.

CHAPTER 4

JIGSAW COOPERATIVE LEARNING APPROACH FOR EFFECTIVE TEACHING OF BUSINESS EDUCATION

4.1   INTRODUCTION

The previous chapter dealt extensively with cooperative learning as an effective learner-centred approach to teaching. This chapter focuses on Jigsaw as a learner-centred approach used in this study. Specifically, the chapter examines various origins of Jigsaw and the reasons for using the Jigsaw strategy, its benefits and the historical precedents for the development of these theories. As the chapter progresses, the fundamentals of the approach under discussion, the process, and Jigsaw classroom will also be covered.

The focus of this chapter is cooperative learning, which is based on the assertion made by Astarini, Juwita, and Setiawan (2019) that educational institutions must implement learning with a student-centered approach. Students are the center of attention during the teaching and learning processes in this method. Cooperative learning allows students to develop skills outside of the classroom, such as interpersonal communication and teamwork. The Jigsaw method is one of the cooperative learning techniques, according to Kartika, Firdaus, and Swistoro (2020), which motivates students to be more active and support one another when learning content to achieve optimum success (Monalisa, 2015). With the activities that students participate in, this strategy aids in enhancing group cooperation where students communicate by expressing their thoughts, exchanging knowledge, exhibiting their understanding abilities, and correcting group members. Students might so learn through dialogue using Jigsaw learning.

The training of pre-service teachers continues to be difficult due to the link between theory taught in universities and its implementation in practice. The conventional strategy has been to send pre-service students into schools to implement the material after taking a number of theoretical courses at universities that illustrate good teaching techniques. Research has acknowledged the shortcomings and inherent challenges

of this theory-into-practice approach notwithstanding such activities (O'Leary *et al*., 2015). University lecturers use traditional teaching methods which are considered suitable and effective in producing good academic results; however, it is also considered one of dominant impediments in enhancing students' academic performance. Among the reasons for traditional teaching approaches being prevalent is the challenge of adopting other teaching methods, attitudes of lecturers and students and the disruptive learning environment. The practice of a traditional method is considered appropriate for the teaching of Business Education, yet there are implications thereof such as: favouritism, spoon feeding and less conversations amongst students. To accommodate the diverse student body, Business Education lecturers must, however, look into student-centred approaches. This is a sentiment shared by van Wyk (2007; 2011), who asserts that academics must equip students with knowledge, skills, and values so they can come up with original solutions to problems and connect them to real-world scenarios. There is ample literature on student-centred approaches encouraging lecturers to incorporate more active learning into their classrooms. Part of this learning involves the acquisition of social skills, independence, group processing and the skills necessary to interact with one another (Costouros, 2020). In the present study, the Jigsaw strategy of learning was implemented with the first-and fourth-year students to design a modified Jigsaw cooperative learning strategy to enhance academic performance of Business Education students at a university of technology. The use of an effective teaching and learning methods in a university lecture room is crucial hence, the application of the Jigsaw cooperative learning strategy in Business Education.

4.2   ORIGINS OF JIGSAW COOPERATIVE LEARNING

Cooperative learning consists of several types of learning. Jigsaw cooperative learning is one of the most common forms of CL developed in the 1970s by Elliot Aronson and his colleagues at the University of Texas and Johns Hopkins University (Purwanty, Fredy Yampap & Bay, 2020; Sabbah, 2016). The rationale for introducing the Jigsaw strategy was to reduce racial tensions following the desegregation of schools in the United States of America (USA) (Aronson *et al.,* 1978). The strategy sought to shift the emphasis from competition amongst students to a more cooperative one (O'Leary *et al.,* 2015).

The Jigsaw approach of learning employs groups consisting of four to six heterogeneous students of mixed abilities. The Jigsaw cooperative learning model makes it the duty of each student to instruct the other students in a group on the assigned parts of the material, which enhances student learning. It offers opportunities for students to express their opinions and acquire extensive knowledge on the subject (Purwanty *et al.,* 2020:468) which assists in enhancing student learning (Costouros, 2020).

Jigsaw I: The Jigsaw classroom was first established in 1971 in Austin, Texas, by Elliot Aronson and her graduate students as a means of resolving desegregation (Aronson, 2005), as the Jigsaw teaching method was thought to provide a learning environment that supports students in carrying out their cooperative learning.

Jigsaw II: Jigsaw I as it was adapted by Slavin in 1980, concentrated on the distinct piece of reading material that had been given to every group of students. The student who has the assignment will leave the original or home group and join the experts in the group in order to gain new information and become an expert in the work they have been given. After that, the advanced learner goes back to his or her original group and imparts knowledge to the other members.

4.3 USING THE JIGSAW COOPERATIVE LEARNING METHOD

The findings on active learning were supported by the literature research on Jigsaw cooperative learning. More importantly, it has been claimed that students responded favourably to the instruction and performed better. However, given that the examined literature concentrated on science, technology, engineering, and mathematics (STEM) education, it appears that little study has been done on business education courses (Costouros, 2020). As a result, the research's findings will contribute to both the corpus of knowledge on Jigsaw cooperative learning in other courses as well as to active learning in Business Education modules.

Jigsaw cooperative learning is widely utilized in academic settings across the world, both for the study of certain curriculum modules and for a variety of social academic activities (Maftei & Maftei 2011). Azmin (2015) confirmed that Jigsaw cooperative

learning is a proven educational strategy that can raise student achievement compared to traditional individualist learning. Improved student academic performance, according to Nduji, Nwandikor, Keziah, and Elejere (2020), suggests that the use of the Jigsaw cooperative learning strategy fosters the development of students' confidence and discussion skills. This, in turn, facilitates the formation of friendships and social networks among the students.

The effectiveness of the cooperative learning approach has been supported by several earlier research. Only one of the 27 research on cooperative learning that were included in Azmin's (2015) review indicated negative impacts on students' performance. In fact, the use of Jigsaw cooperative learning led to a 50% increase in student performance (Slavin, 1981). The impact of the Jigsaw II approach, an adaptation of the original Jigsaw technique, on students' academic performance and attitudes toward a written expression course was examined in research by Sahin (2010). The Jigsaw II approach helped the students in their written expression course learn more, according to the study's findings. Costouros (2020) reaffirms the findings of a large number of studies that looked at the impact of Jigsaw cooperative learning on student performance and found that grades were positively impacted (Azmin, 2016; Doymus, 2008; Gömleksiz, 2007; Johnson, Johnson, & Stanne, 2000; Kiliç, 2008; Morgan, Rodriguez & Rosenberg, 2008; Tran & Lewis, 2012). A study of 80 math students in Vietnam concluded that student-centered cooperative learning led to better retention and accomplishment (Tran & Lewis, 2012). The results of a Malaysian research revealed an improvement in math students' performance (Zakaria, Chin & Daud, 2010). Gömleksiz (2007) concluded that Jigsaw cooperative learning, as compared to teacher-centered training, allows students to remember learning content for a longer amount of time. The majority of this research have been carried out in STEM disciplines, including, but not limited to, math (Tran & Lewis, 2012; Zakaria *et al.*, 2010), medicine (Montrezor, 2016), and biology (Slish, 2005). Though working in small teams is now encouraged in professional settings, and cooperative learning practices might help students by better preparing them for the job, little study is focused on business education (Costouros, 2020).

The Jigsaw technique has been shown to be effective in the learning process of theoretical courses, in the development of students' critical thinking processes, in the

development of their ability to express themselves, and in the improvement of their communication skills, particularly at the primary school, high school and university levels, according to research (Kilic, 2008). The Jigsaw approach has demonstrated to be an effective and successful tool for entrepreneurship education, differentiating courses for MBA and doctorate students (Holloway *et al*., 2008). This approach has been demonstrated to be quite successful in distant learning (Maftei & Maftei 2011). Clearly, Jigsaw learning is an effective method for both face-to-face interaction and online teaching and should be recommended across all modules at higher learning institutions.

Jigsaw cooperative learning is one of the active learning techniques that may be used in the teaching of business education at the university level. It could aid students in fostering the growth of optimistic learning attitudes, a desire to interact with their classmates, and a desire to cooperate to advance each other's learning (Su, 2016). Similar to how Arguedas, Daradoumis, and Xhafa Xhafa (2016) see the Jigsaw technique, students may become more self-regulatory in their performance by using it to get involved in their learning, hold themselves personally responsible for their learning, and become more accountable to others. By maximizing engagement, this tactic fosters a climate of cooperation and consideration for other students.

To put it simply, Jigsaw cooperative learning is one of active learning methods that that directs student involvement. Each student has the ability to search for information on their own and share that knowledge with others. Because the basic description of this technique is to work on the subject matter in cooperation, it aids students in learning or translating much of the information in a short period of time while probing for knowledge (Fitriyah & Fauzi, 2020). Seemingly, the aim behind incorporating Jigsaw learning in a classroom is to help students grasp knowledge that is difficult for them to acquire independently while also fostering collaboration and cooperative learning abilities. understand content that is challenging for the students to learn individually. This is evident when students can interpret the subject matter meaningfully because through the Jigsaw cooperative learning, students share information and conclusions from their discussion. Notably, Jigsaw cooperative learning portrays concrete evidence in group learning.

As observed by Babiloni, Guijarro and Cardós (2016), the posing of questions to every student during a Jigsaw intervention gives them a feeling of accountability not only to their own learning but also to that of the entire class. It is a known fact that imparting knowledge to others calls for a thorough grasp of the subject. Jigsaw strategy simplifies the learning tasks and makes learning more fun and regardless of the workload allocated to students, students remember knowledge for a longer amount of time when using this learner-centered technique than when using teacher-centered learning (Costouros, 2020).

In summary, for the Jigsaw technique to be effective and for the lecturer and the students to achieve teaching and learning objectives, it must be carefully designed and structured with appropriate learning resources and instructions (Azmin, 2015). The Jigsaw cooperative learning approach is effective and productive for both low and medium achievement students although in some cases, high-achieving students would prefer individual learning.

4.4   THE JIGSAW MODEL OF COOPERATIVE LEARNING

American sociologist and psychologist Elliot Aronson developed the Jigsaw model of cooperative learning, commonly known as "puzzle in class," as a teaching and learning strategy in 1971. The Jigsaw approach is a popular cooperative and collaborative learning tool that is applied at all educational levels. Jigsaw exercises in the classroom encourage students to actively engage in the learning process by encouraging them to listen to one another, participate in learning activities, exchange knowledge, and have a significant impact on the academic activity. It divides students into groups and divides tasks into smaller pieces, which the group then assembles to finish the Jigsaw puzzle (Bogam & Khan, 2016).

It is therefore a student-centred method of organising classroom activities that puts the focus on the students and relies on their cooperation in order to succeed., which requires an appropriate physical environment to facilitate its implementation to arouse and maintain student interest (Bekele, 2016). Jigsaw cooperative learning requires a conducive learning environment in order to be a successful teaching approach, but it also has to be well organized. Morgan *et al.,* (2008) proposed that students should be

clustered diversely hence the lecturer needs to carefully prepare for the lesson beforehand to articulate the guidelines clearly (Costouros, 2020).

Jigsaw cooperative learning is among the numerous cooperative learning strategies where students actively carry out their learning tasks in groups regardless of their gender, race, religion, or level of competence. To accomplish a specific learning objective, students collaborate in small groups (O'Leary *et al.,* 2015:178). Karacop and Diken (2017) refer to the Jigsaw strategy as a teaching method where students are in charge of learning the content and imparting it to other students whilst Parmar and Parmar (2020) regard the Jigsaw strategy as a student-centred approach whereby students are effectively taught by their peers in a joint group activity. Due to the fact that the lecturer's choice of learning model has a significant impact on the learning outcomes that students will accomplish, it is essential to adopt a learning model that actively incorporates students in the learning process. In this approach, the learning process takes place where there is effective communication amongst students regarding a particular learning task.

In Jigsaw learning, each student is seen as a piece of the puzzle, and the finished product symbolizes the whole learning process occurring in class. The method gets its name from the fact that each student works on a different piece of the puzzle while the group works to fit the parts together or contribute to the answer. As a result, the group as a whole comes up with a solution to the overall puzzle and gains comprehension of the topic group (van Wyk, 2016).

The entire class is assigned a topic for their work before the lecturer divides each group into smaller groups based on those tiny group sizes. Each student in the groups is expected to take charge of a specific activity that is distinct from others and is obligated to contribute to the overall success and/or achievement of the group. Each student would add their own learning experiences to create a comprehensive understanding of the whole session (Grasha & Yangarber-Hicks, 2000; Tran & Lewis, 2012). The Jigsaw method of cooperative learning can be utilized as an alternative to traditional teaching strategies. In essence, this method improves group work cohesiveness since each group member is in charge of a certain aspect of the group's learning aim (Babiloni *et al.,* 2016).

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A highly organized approach to cooperative learning is the Jigsaw teaching technique. According to Amador and Mederer (2013), a well-organised Jigsaw experience should include explicit directions on how to set up the group process that will result in the group product. This means that in the application of the Jigsaw strategy, the lecturer needs to ensure that adequate preparation is done which includes identifying the learning goals to be met, creating the learning guidelines, putting students into heterogeneous groups and explaining the process and procedures involved in Jigsaw cooperative learning, the lesson outcomes and the rationale for using this strategy. Students should also be enlightened on how they will be assessed after which the lecturer will introduce the topic and sub-topics. However, introducing students to Jigsaw cooperative learning for the first time is not an easy one as lecturers need to use a variety of strategies and provide as many opportunities as they can to enable all of the students in the class discover something that will help them develop and progress. Hence, the class is divided into diverse home groups of four to eight students each (O'Leary *et al.*, 2015).

There have been many debates around the number of students required to form a group for an effective Jigsaw experience. According to van Wyk (2016) suggested each group to be set with five students whilst Purwanty *et al.,* (2020) are of the opinion that home groups should consists of four to eight students each of whom is allocated a subtopic or a learning task in the group. Arguably, the studies that the researcher has come across revealed that the number of students in the classroom and the quantity of work that should be assigned to each student in each group influence how students are divided into groups. Basically, the ratio of group members to topics or activities to be taught in class should be equal.

The primary features of Jigsaw-based cooperative learning are that students learn through the collaboration that takes place between members of the "home groups" and "expert groups" so they may work together to do joint research and exchange course-related material. Jigsaw learning is predicated on the idea that each student will initially become "an expert" in a minor portion of the entire learning material, and then educate other students about this portion of the information (Van Dat, 2016). Jigsaw cooperative learning is one of the instructional techniques intended to teach students how to collaborate and communicate with others in a group (Janah &

Subroto, 2019, Amin, Nur, Damayanti & Suharti, 2020). The first phase involves grouping the students. The parent group, also known as the home group, is made up of students with a range of academic ability, including high, medium, and poor learning success. According to O'Leary *et al.* (2015:179), this stage is known as concentrated exploration, during which each student gains knowledge about a particular subject either directly from the lecturer or through lecturer-supplied resources.

Johnson and Johnson (1990) suggest that the lecturer consider a few factors before beginning Jigsaw exercises since doing so will encourage and guide students to enjoy working in their groups. Cole and Chan's (1994) recommend that students should feel at ease and recognise their group membership, and choose whatever they enjoy naming their group, such as their favourite cartoon characters, colour, animal, or flower. It is suggested that the same students continue to work together in the same Jigsaw group. More than two or three tasks should be completed by this group. Giving students a sense of belonging to one another will be beneficial. The expert group can be created by lecturers themselves since each group has students of varying academic abilities. The task will be chosen, depending on how challenging it is. The most challenging activities can be provided to students with high abilities, while the simpler ones can be given to students with low abilities (Su, 2016).

Each student in a home group is given a topic to learn more about when the group is founded. The second level requires students to leave their home groups once they are comfortable with their assigned activities. Members who are given the same task create a group known as an expert group to discuss the subtopic because the name suggests that they have first-hand experience understanding this particular subtopic (Changtong, Maneejak, Yasri, 2020). Expert groups are formed from students who have been given the same topic. The assignment is first completed separately by each student, who is taken out of his or her group, reads their or her text, and then attempts to comprehend it by making notes. Students are told that when they study on several facets of a single general subject, they will individually become "experts" in those facets (Boştină-Bratu & Negoescu, 2016).

After then, each expert group member gets together to conduct research, have a discussion, and build on each other's knowledge on the allocated joint topic (Azmin, 2015). This is how the groups learn the material. Students converse and share ideas

in these expert groups in order to reiterate and make clear the key topics. To increase their confidence in their capacity to express their issue in the next level, they swap notes on their topic analysis (Amador & Mederer, 2013). The students thus get in-depth knowledge of the specified subtopic.

After an appropriate amount of time (10 to 15 minutes in the expert group), the students regroup with the original or home groups. The lecturer then signals that they have a limited time (15-20 minutes) to communicate their knowledge to the other members of the group. This way, they all get a complete image of the lesson/general question and are able to answer questions and discuss the topic (Boştină-Bratu & Negoescu, 2016:409). This is the reporting and reshaping phase, during which the students impart their knowledge to those in their group as well as share their conclusions and conversations with those in their home group. Each member of a group will have gained knowledge from each expert group discussion and possess knowledge that all members must acquire; as a result, each member of the group is in charge of imparting that knowledge to the other members of the group (Azmin, 2015; Engül & Katranci, 2014). Students integrate their individual pieces of work together throughout the integration and assessment step to create the necessary piece of work. Students should have the complete picture once all the parts have been placed together, thus the term "jigsaw" (Sabbah, 2016). As in a Jigsaw puzzle, each piece therefore reflects the input of each student and is necessary for the task to be completed (O'Leary *et al.*, 2015).

The lecturer observes each group and acts as a facilitator, helping the slow, quieter students and intervening where necessary, for instance, when students are too talkative or monopolising (Suresh & Reddy, 2017). To make students more motivated, the lecturer can provide a map to chart student progress in each activity (Su, 2016). It is reasonable to add an individually graded component in the Jigsaw exercise. The work can be scored to provide students with motivation to prepare properly for the ensuing Jigsaw experience. At the end of class, all results have to be disclosed. To the individual score, the group score should be added. Students' performance can be evaluated by lecturers using the scoring matrix (Su, 2016). The participants may additionally complete a written evaluation following the final presentation stage to gauge how much they have learnt. Particularly useful in assessing the collaborative

and cooperative learning technique and guiding future learning is how each participant applied their knowledge to complete the evaluation (van Wyk, 2016).

Jigsaw learning is centered on inspiring students to participate actively in their interactions with other students in groups to make sure that each member of the group understands the key concepts. However, it differs slightly from other cooperative learning models in that students are divided into two groups: their original or home groups and expert groups (Amin *et al.*, 2020). As a result, students get to work with a range of students who support one another in developing and understanding the class assignments (Amin *et al.*, 2020:236). Many possibilities for opinion expression and information processing are provided to students throughout this Jigsaw encounter. This model also fits activity units with more challenging learning materials that can broaden the scope of collaboration from the group to the entire class, therefore it is consistent with the broader objective of cooperative learning (Huang, Liao, Huang & Chen, 2013).

According to Changtong *et al.* (2020), Jigsaw cooperative learning is a systematic kind of peer coaching in which a variety of students are taught various topics before sharing what they have learned. By distributing the burden of learning among small groups of students, this approach emphasises peer learning. It may be utilized as a work team to generate a concrete group project or output, or it can be used as a conversation or peer-learning experience as an end. By splitting up the learning tasks, the Jigsaw group arrangement enables students in both situations to assist one another in comprehending knowledge about related topics. This implies that each student in a small group is in charge of developing competence on a distinct subject, theory, or reading and imparting that skill to other students in the group (Amador & Mederer, 2013).

A routine instructional cycle of activities, including reading, grouping, regrouping, expert group discussion, team reporting, testing, and ultimately team recognition, makes up the Jigsaw approach. The Jigsaw strategy is linked to Wittrok's theory of cognitive restructuring by Rolheiser and Stevahn (1998). Wittrok's theory emphasizes the value of practice, explanation, and elaboration on the subject matter for students to make sense of the incoming information and prevent retrieval failure in interpreting. Evidently, the lecturer should take the variation in each student's particular aptitude

into account while dividing the class into Jigsaw groups. It is vital to understand that there are students in the same Jigsaw group who flourish and students who lag behind. In this way, the Jigsaw cooperative learning method may better excite the motivated students while calming the anxious students (Lv, 2014).

Jigsaw learning's key characteristic is that it places a heavy emphasis on collaboration, communication, and sharing between members of the expert group and the student's home group (or Jigsaw group). Each student is in charge of finishing a certain section of the learning task. Lecturers are no longer gurus; they become facilitators and mentors towards their students' learning (Lv 2014). Students will become leaders in their own learning including managing their personal lives.

The Jigsaw approach was created to encourage collaboration by making students reliant on one another. However, the primary distinction between this and other cooperative learning strategies is that Jigsaw cooperative learning places responsibility for a portion of the instructional task on each group member. As a result, every student is committed to the learning activity and working towards a shared objective (Huang *et al.*, 2013). This teaching strategy benefits students in a number of ways, including by improving their listening skills, levels of engagement, and empathy as well as by increasing their interdependence and participation in group learning (Huang *et al.*, 2013). The development of students' problem-solving skills is also supported by this teaching strategy as they study in more focused small groups (Amin *et al.*, 2020). According to Karacop and Diken (2017), the Jigsaw model is a successful strategy for encouraging dependability and teamwork. It aims to strengthen students' sense of ownership for their own and their teammates' academic progress. In addition to learning the content presented, students must also be prepared to share and teach the subject to other group members. As a result, students must work together to accomplish their group's objective as they are dependent on other group members (Purwanty *et al.*, 2020).

4.4.1   Considerations before the Jigsaw Strategy

Placing students in a group does not always guarantee that they will learn cooperatively. The following are some aspects that need to be taken into consideration before implementing the Jigsaw strategy in the classroom (Su, 2016).

Group training: students cannot be urged to work cooperatively without training. In this situation, lecturers must give students a chance to get to know their group before asking them to start on their learning task. They should first understand how each individual accomplishment adds to the collective accomplishment.

Group size: it is crucial to choose the ideal group size because when groups are too big, some students may get lost in the mix while others may coast at the expense of the workers. A small group encourages all members to participate and become visible. In larger groups, communication may be more challenging and the working procedure more difficult, (Boştină-Bratu & Negoescu, 2016).

Group composition: the aptitude and gender of the students must be taken into account when creating groups. Students with varying levels of skill and gender create an effective group. This will have an impact on how they interact and perform as a group.

Group task: in the classroom, lecturers must be aware of the various group work structures and the significance of encouraging students to get the most out of both their individual and group learning. Lecturers must make sure that while creating the learning tasks, students understand what kind of support would be most beneficial as a team.

Group interaction: the tasks that the lecturer assigns to students and their group interaction are strongly intertwined. Speaking generally, the activities created by the lecturers serve as a catalyst for engagement among the students. For the students to communicate with one another, ask and respond to questions about the assigned topic, such activities must encourage peer interaction (Su, 2016:96).

Johnson and Johnson (1975) noted that for cooperative learning to be successful, two essential components must be present: first, learning groups must encourage members' active learning through interpersonal interactions and group discussions; and second, lecturers must carefully plan and set up the course in order to give students the necessary professional knowledge and direction prior to instruction.

4.4.2   From the Lecture Method to Group Work

In universities, the majority of instruction consists of lectures, seatwork, or competitions where students are segregated from one another and not allowed to mingle. Less time is spent by the students debating issues or expressing their opinions in class than is spent listening to lectures. For a limited time, group work has been employed in schools to help students develop their interpersonal skills and competency (Gupta & Pasrija, 2012).

4.4.3   Neglected Aspects of Interaction

An overlooked part of education is how students relate to and perceive one another. Most of the training is focused to assisting lecturers in setting up proper interactions between students and resources like textbooks and curricula. While some time is given up to how lecturers should connect with their students, much of it is overlooked when it comes to how students should communicate with one another. There are fundamental ways that students can communicate with one another while they learn. They can work jointly with a stake in each other's learning as well as their own, or they might compete to determine who is the best (Gupta & Pasrija, 2012).

Although some lecturers still employ a conventional group project approach to teaching, most students lack enthusiasm for it. The typical teaching approach fosters rivalry, whereas students who learn cooperatively collaborate to complete their tasks in a way that benefits all students from a common experience. For activities like games, creativity, brain storming, and mind mapping that are not feasible in traditional education, however, cooperative learning is the ideal option. Cooperative learning involves small groups of students working together to complete a common task, whereas traditional learning involves students still engaging in competitive behaviour. Cooperative learning fosters the development of skills, which traditional techniques sometimes neglect. Students who participate in cooperative learning depend on one another since group success and individual success are intertwined. While there is no dependency in traditional approaches, cooperative learning gives every student an equal chance to succeed (Ramzan & Akhtar, 2016).

According to Boştină-Bratu and Negoescu (2016), when evaluating group work, it is important to consider the students' behaviour as they complete the task, including how

cooperative they were with one another, how well they played their assigned roles in the group, how well they managed their time, and what kind of product was required. Additional factors to consider include the formal quality and scientific quality of the group's work, accurate and comprehensive information, coherence, the group's answer to the problem, and adherence to the specified format (Boştină-Bratu & Negoescu, 2016).

4.4.4   Motivation to Encourage Students

A systematic approach to interdependent learning known as Jigsaw has been created for the classroom (Boştină-Bratu & Negoescu, 2016). Jigsaw might create the circumstances for improving motivation, self-esteem, teamwork, and academic success. Collaboration, content, and choice are the three Cs of motivation, which are designed to motivate students to contribute to group projects and discourage social loafing. To operate well and achieve a shared purpose, a team needs strong coordination of all its members' abilities, efforts, and actions in addition to talent and motivation (Boştină-Bratu & Negoescu, 2016).

The drive to learn is essential for the learning process. The use of learning models is only one of several strategies that may be used to motivate students. Berlyana and Purwaningsih (2019) claim that learning motivation might promote learning zeal and motivate students to engage in learning activities (Berlyana & Purwaningsih, 2019). Students that are motivated to learn will attempt any assignment and complete the learning goals. Students who are motivated to study are more likely to engage in educational activities (Amin *et al.*, 2020).

According to Aronson (2005), the necessity for a jigsaw style of learning arose from a particular social setting, particularly with regard to persuading students to actively involved in the teaching and learning process. The development of this concept demonstrates that techniques may significantly impact student learning. In order to enhance the cooperative learning method, Aronson created and implemented the Jigsaw technique in educational settings. His Jigsaw pedagogy suggests even more specific methods for putting this concept into practice, and his website (https://www.jigsaw.org/) engages lecturers by allowing them to take part in a

collaborative learning process that gives them a deeper comprehension of the Jigsaw teaching style (van Wyk, 2016).

4.5 LECTURERS' ROLES AND RESPONSIBILITIES

In a setting where the Jigsaw cooperative learning technique is prevalent, lecturers have certain obligations (Cohen, 1994). Jigsaw lecturers often decide how to arrange students and what tasks to give them prior to the start of the lesson. The lecturer does all the required preparations, including splitting the subject into manageable pieces and creating learning exercises for each chunk. In order to facilitate class discussion or summaries, they keep an eye on the students and intervene when appropriate. The task of assessing students' learning and the efficiency of each group's work falls on the lecturers (Cohen,1994). The following are the general responsibilities of a lecturer who uses the Jigsaw technique. As a facilitator, he or she not only helps students communicate with one another but also with the text and the other activities in the classroom. They also act as a resource themselves, an organiser of resources, a guide for the activities and procedures in the classroom, and a group process manager, keeping track of, encouraging, and closing gaps in students' vocabulary, grammar, and use of strategies. In addition to aiding in self-correction discussions and serving as a need analyst, the lecturer should offer alternative and in-depth activities and assume responsibility for identifying and meeting the language requirements of the students (Sabbah, 2016).

4.6 PRINCIPLES OF JIGSAW LEARNING

Jigsaw learning, as one of cooperative learning strategies, is rooted in the five principles that are fundamental to its success: these include positive interdependence, individual accountability, face-to-face interaction, social skills and group processing.

4.6.1 Positive Interdependence

The first essential principle for Jigsaw learning is positive interdependence. With positive interdependence, each student understands that the group will succeed once each member commits to the learning progress of other group members. Members of each group are confident that by working together on a learning activity, all group members will succeed and no one will be left behind. (Ong *et al.,* 2020). Therefore,

home group members need to confide in each other and join together for the group to complete their learning tasks effectively (Abuhamda, Darmi & Abdullah, 2021; O'Leary *et al.,* 2015).

Nevertheless, positive interdependence discourages students who solely depend on other students. For instance, each student works independently on a different learning task. After completion of work, all the members produce feedback and share insights to compile the group task. Each student is expected to contribute towards the achievement of individual and group goals. Interdependence can be achieved through dependence on goals, learning tasks, learning resources, roles and rewards (Purwanty *et al.,* 2020).

Ong *et al.* (2020) distinguished the roles that are allocated to each group member. There may be a summarizer-checker who makes sure that each group member has a firm grasp of the learning content being covered; a researcher-runner who seeks out learning materials that the group might find useful; a recorder who captures the group's conclusion and edits its report; an encourager who strengthens members' contributions; and an observer who oversees whether the members are working collectively.

4.6.2   Individual Accountability

The second principle for Jigsaw learning is individual accountability which requires every group member to master the learning task so when assessed, each of the students can successfully complete the assessment. According to Ong *et al.* (2020), the lecturer may either randomly ask any member to respond to the questions, request any student to share the group's view or administer an individual test at the end of the lesson. Subsequently, individuals and groups will be given feedback on their progress so that those in need receive the help and support (Purwanty *et al.,* 2020). According to Johnson and Johnson (2017), one of the typical ways of arranging individual responsibility is to give each student an individual test and select one student's work at random to represent the efforts of the entire group.

Furthermore, Abuhamda *et al.* (2021) state that the lecturer should observe each group and mark the commitment and pace at which each member contributes to the

group's work. It is recommended that the leader, should follow up on with the others to clarify the reasoning for the group's responses and ascertain that each member provides feedback about their allocated learning activity (Abuhamda, *et al.,* 2021).

To ensure that each student's labour contributes to the final product, each student must take personal responsibility for their work (O'Leary *et al.,* 2015). Unlike traditional groups where individual accountability is often ignored and tasks are carried out by some members, the Jigsaw strategy requires students to be responsible for the tasks assigned to them (Purwanty *et al.,* 2020:468). For the most part, the cooperative group should remain small since increased individual accountability results from smaller groups (Abuhamda *et al.*, 2021).

4.6.3   Face-To-Face Interaction

The third principle is face-to-face interaction or face-to-face promotive interaction where students support, facilitate and enhance the work of their fellow group members (O'Leary, *et al.*, 2015:179). Jigsaw interactions promote face-to-face discussions amongst students in the same way with the students and the lecturer (Purwanty, *et al.*, 2020:468). Students are actively involved, experience engaging conversations and sharing of ideas as well as learning resources. To further such a sense to participate, to belong and commitment, students sit in groups of two to six members in what is referred to as a knee-to-knee or eye-to-eye position (Ong *et al.*, 2020).

Group members support each other by verbally describing how to answer the tasks that have been provided to them, share knowledge, confirming comprehension, talking about topics being taught, and compiling linkages between past and current learning (Abuhamda *et al.,* 2021:5950). Students address one other by name, maintain eye contact and display acceptable body language when they engage and discuss (Ong *et al.*, 2020:1983). Such conversations enable students to learn from each other with adequate answers, insights or explanations. This technique reveals how it is frequently simpler for students to learn from one another than from the lecturer (Purwanty, *et al.*, 2020:468).

4.6.4   Social Skills

The principle of social skills is mostly overlooked in normal traditional group work. This principle of Jigsaw cooperative learning fosters with the development of various social skills namely leadership, decision making, trust-building, communication and conflict management (Abuhamda *et al.*, 2021; O'Leary *et al.*, 2015). Other social skills that could develop include tolerance, courtesy to friends, disagreeing without criticism, daring to maintain logical thoughts, not dominating others, being independent and various other traits that are useful in interpersonal relationships (Purwanty *et al.*, 2020). These social skills should be explicitly taught much like academic skills and not taken for granted, mindful of the fact that students come from diverse backgrounds and that one's development of social skills is influenced by peers and the environment in which they lived.

Therefore, lecturers should focus on equipping students with social skills that are significant to Jigsaw learning. Essentially, while teaching social skills, Ong and Yeam (2000 cited by Ong *et al.,* 2020) suggest that students need to be informed about the purpose of learning the skill, what the skill is conceptually and behaviourally, the methods for practicing the skill, how well the students use the skill, and how they can improve their use of the skill.

4.6.5   Group Processing

Group processing, the last principle of Jigsaw cooperative learning, occurs when students in their respective groups gauge their level of achievement, interaction amongst themselves and the use of social skills to achieve a common goal (O'Leary, *et al.*, 2015). At regular intervals, students should be given time to assess themselves and others to better their cooperation in future. Discussions about cooperative and non-cooperative member behaviour are necessary in groups in order to decide which behaviours should be altered or preserved (Purwanty *et al.*, 2020). Group members evaluate how well their goals are met, how well their working relationships are maintained, what participation activities are helpful and what are not, and decide which routines to keep or change. Students can be exposed to curriculum while still retaining a high level of personal accountability. Since it is impossible for students to fully absorb

the content if they study it entirely independently, this promotes collaboration and collaborative learning abilities (Abuhamda *et al.*, 2021).

Ong *et al.* (2015) revealed ways of structuring group processing which includes requesting students in each group to reflect on the support received from fellow members and if there was insufficient help what the members do to ensure that the group improves its performance in the next sessions. Alternatively, lecturers may pose questions about both the current encounters and future expectations of students with Jigsaw cooperative learning. This kind of group processing not only helps student groups to prioritize group upkeep but also makes sure that every student receives feedback, enhancing the learning of other participants through their contributions.

Jigsaw learning enables lecturers to provide content to students while maintaining a high level of student autonomy. Finally, since students are required to share their Jigsaw learning outcomes with their families, this frequently reveals how they comprehend a subject as well as any misconceptions (Abuhamda *et al.*, 2021:5950).

The relative relevance of these principles and whether all five must be present for successful Jigsaw learning are still hotly debated, according to O'Leary *et al.* (2015). However, compared to other cooperative learning techniques, Jigsaw learning's main criterion is that students educate one another, which means that all five criteria must be followed for the approach to be successfully implemented (O'Leary *et al.*, 2015).

4.7   QUALITIES OF JIGSAW TEACHING AND LEARNING APPROACH

In this section, various qualities of the Jigsaw teaching and learning approach are discussed.

4.7.1   Student-Centred and Student Driven

Students are at the centre of a successful teaching-learning environment, which puts them in a position to satisfy their requirements for learning and make significant progress in their own learning. This is why diversified teaching has been developed in opposition to the idea of uniformity and standardization of the teaching methods that should enable every student in the classroom to learn and progress at his or her own pace and in accordance with his or her learning style (Boştină-Bratu & Negoescu,

2016). If groups are organized in a way that allows members to coordinate their learning activities to support one another's learning, then this will result in an efficient and effective learning environment. As stated previously, a Jigsaw classroom needs to adhere to five principles in order to promote students' engagement in learning (Johnson & Johnson, 2008; cf. Chapter 4, Section 4.6). (Johnson & Johnson, 2008; *cf.* Chapter 4, Section 4.6). Students will perform better and exhibit excellent learning skills if they adhere to the fundamental rules in their individual groups. The roles of the lecturer and students will alter if these five components are incorporated in cooperative settings; the lecturer will no longer be the "sage on the stage" but rather "the guide on the side" (Van Dat, 2016).

4.7.2   Reduces Hostility and Prejudices

The Jigsaw classroom also has the important benefit of significantly lowering animosity and racial stereotypes within a diverse population. As there is a lot of material to master, the Jigsaw method can be employed in a foreign language classroom (Boştină-Bratu & Negoescu, 2016:411).

4.7.3   Motivation, Self-Esteem and Positive Attitude

Experience in the classroom has shown that Jigsaw students are more eager to study than students in conventional programs. As students' self-esteem increases significantly, their attitude towards their peers is likely to rise irrespective of their relationship (Boştină-Bratu & Negoescu, 2016). Equally, a favourable attitude toward the Jigsaw learning technique is also required of lecturers. They should also have a thorough comprehension of the entire strategy. Simply put, lecturers should possess an abundant store of knowledge (Lv, 2014). Killian and Bastas, (2015) and Zakaria *et al.,* (2010 cited by Costouros, 2020:158) indicated that there were evidently favourable sentiments about the topic. Jigsaw learning gave students confidence since most said it boosted their self-confidence and passion in studying while allowing them to participate effectively in class.

4.7.4   Guidance and Supervision

Guidance and supervision are the lecturer's primary responsibilities in the Jigsaw learning process. Initially the lecturer needs to define the learning objectives and the

learning tasks as well as giving clear instructions to the students. The purpose of the lesson, requirements, methods and the learning content should be explained. During Jigsaw learning, the lecturer should be able to manage time (Lv, 2014:1951). The Jigsaw cooperative learning approach differs from traditional teacher-centred classroom presentations in that Jigsaw students must comprehend the significance of paying close attention to the lecturer's presentation because it will direct them during their group work, quizzes, and team scores, which are based on quiz scores (Kirik & Boz, 2012).

4.7.5   Mastery of the Learning Material

Jigsaw cooperative learning is used in the classroom to determine each student's level of understanding of the material. Jigsaw grouping divides the course material into digestible chunks, which are then collectively combined to create a coherent whole. Each student should first master their tiny portion of the assigned activities, and only then should they instruct other students on their portion of the curriculum (Van Dat, 2016, Van Wyk, 2016). Students should also be prepared to respond to questions posed by lecturer which could be in the form of direct questions or in the form of questions and answers (Purwanty *et al.,* 2020:470).

4.7.6   Group Movement

One of the crucial elements that enhances Jigsaw learning's success is the mobility of students between groups. Ordinarily, with a traditional approach, different learning tasks will be allocated to a whole group whilst in Jigsaw approach, learning tasks are allocated to each individual student within groups. With Jigsaw grouping, such challenges occur since home group members have an opportunity to meet and jointly share with expert members who hold a similar learning component. Nonetheless, students may interfere and talk to other groups, move regularly across groups and avoid sharing information with peers. To overcome interference and chitchat, the lecturer should move around groups to observe student progress and intervene if there are any difficulties in group discussions thereof. In order to regulate group movements, the lecturer takes turns moving from one expert group to another so that the classroom conditions are orderly and the learning process runs smoothly.

In an effort to encourage shy students to share their part of the learning activity with others, the lecturer guides and, if necessary, accompanies the student in sharing information with group members that was gained from the expert group. The lecturer may motivate students to learn to talk with their peers and give rewards to active students (Purwanty *et al.*, 2020). Ahrens *et al.* (2016) recommend that lecturers should encourage discussions and group activities to help students improve and lessen their anxiety. Giving them training will enable them to apply their knowledge in practice in an efficient manner.

4.7.7   Student Support and Self-Reflection

The lecturer's role in Jigsaw learning also include encouraging students to assist one another, ensure that everyone in the group comprehends the learning activities, and ensure that everyone is comfortable speaking in front of the class group (Arguedas *et al.*, 2016).

It is important for lecturers to remind their students to express contrasting opinions on the subject, engage in healthy discussion, and engage in critical thought. In addition, lecturers should regularly revise their learning techniques to reorganise or rearrange the learning content. This will help to guarantee that the learning strategies used in the classroom are supportive of the mutual growth of lecturers and students. Students must be psychologically prepared before using cooperative learning techniques.

In the Jigsaw learning process, students' roles include not just being participants but also organizing and creating the activities. The work must also be accomplished by the group members themselves, which is the approach's most fundamental requirement. Because of this, it is crucial that students develop the cooperative learning abilities they will need. During the cooperative learning process, students should learn to think critically, speak out loud, participate in class, actively investigate how new information is formed, and use their own words to demonstrate the process of inquiry. Through group communication, students may find their own unique solutions to difficulties and, with a cooperative group mentality, can assist other students who are having trouble understanding the material. In addition, the students need to develop their listening skills. Everyone in the group will receive advice, reminders, and corrections over their behaviour. As a result, they must attentively

listen to and record the opinions of other students and contrast those opinions with their own. Practice leads to knowledge, and acquiring knowledge is inextricably linked to doing practical work. Finally, the students need to develop their ability to practice together and integrate practice with thought. The cooperative learning activities should represent the consciousness of collaboration, which means they should not only reflect the wisdom of the group but also promote the students' awareness of cooperation and help them develop the habit of cooperating with others (Lv, 2014).

4.7.8   Lesson Evaluation and Assessment

Jigsaw cooperative learning evaluations have to take into account each participant's evaluation as well as those of their peers, groups, and lecturers. There should be a unified norm followed during the evaluation process. It may be based on team performance, for example. The individual and group performances should be merged, and the skill and cooperation performances within the group are integrated. For a thorough evaluation of the cooperative learning process, lecturers should include the students' capacity for self-development as well as their emotions, attitudes, abilities, and language use (Lv, 2014).

4.8   BENEFITS OF JIGSAW COOPERATIVE LEARNING

Student achievement, academic interest, achievement of learning outcomes, attention and peer interaction, student participation and active learning, learning independence and confidence, personal and social relationships, cognitive and critical thinking are benefits of Jigsaw cooperative learning, each of which is discussed below.

4.8.1   Student Achievement

Jigsaw cooperative learning has been demonstrated to be a successful cooperative learning approach when used with a variety of academic modules, including social sciences, natural sciences, and literature, to mention a few. Following the Jigsaw intervention, Huang *et al.* (2013) and Costouros, (2020), discovered that students achieved significantly higher marks and there was a decline in the number of poor performers. Renganathan (2020) reported on a study conducted at the University of Pittsburgh's School of Nursing (Pennsylvania) that compared student's midterm and

final examination grades. Marks of students who experienced a Jigsaw intervention increased by 10% and 15% respectively when compared to marks of class groups who were taught using traditional methods. In a similar vein, research by Aronson (2005) and Dori, Yeroslavski, and Lazarowitz (1995) discovered that students who were taught using the Jigsaw strategy outperformed students who learned through traditional teaching (Astarini & Juwita, 2019:63-64; Azmin, 2015:93).

It's crucial to emphasise that using the Jigsaw strategy can help students succeed as they do not rely solely on lecturers as sources of information but also access assistance from their peers with the use of educational materials. Likewise, the lecturer acts more as a facilitator and a motivator in students' learning (Purwanty *et al.,* 2020).

4.8.2   Academic Interest

Interest is often understood to be the state of being involved in groups of things, occasions, or ideas across time. This denotes a predilection for, affinitiy with, or particular liking for a certain thing, activity, or group of things. Academic interest is the term used to describe students' sentiments of interest or worry about studying any task that captures all of their attention (Ugwuanyi, Nduji, Elejere & Omeke, 2020). In a similar vein, Robinson (1991) suggested that the amount of difficulty of the assigned tasks influences students' desire to be interested in their academic work. As a result, if the learning tasks are demanding to them, high-achieving students are more likely to enjoy working together. According to Azmin's (2015) research, high-achieving students may not find the Jigsaw technique appealing when the subject matter is basic, and they may prefer to work independently.

The importance of taking into consideration students' academic interests was emphasised by Nduji *et al.* in 2020. For the most part, student's academic interest and performance are strongly positively correlated. For instance, a student who is determined to succeed may become motivated by this strategy and become committed to the subject. Studies on students' academic interest have proved it as a predictor of enrolment, perception and performance and achievement (Ogbanna, 2015). As a result, a student's academic interest determines whether they will succeed or fail in their educational endeavours.

4.8.3 Achievement of Learning Outcomes

According to Johnson and Johnson (2017 quoted by Renganathan, 2020), over nine hundred research studies support the superiority of cooperative learning methods over competitive and individualistic activities. These research studies focus on a wide variety of outcomes. In fact, no other teaching method or style comes close to achieving such diverse outcomes as compared to cooperative learning. The outcomes can be classified into three distinct classifications: academic, personal and social with a positive effect being noted on student academic progress for high, average and low achievers (Slavin, 2014).

4.8.4 Attention and Peer Interaction

Kenny, Archambault and Hallmark (1995 cited by Ramzan & Akhtar, 2016) established that cooperative learning methods, particularly Jigsaw cooperative learning is ideal both the gifted and non-gifted students as the lecturer is able to devote attention to each group of students. within a traditional classroom, slow and average students may be hesitant to ask for assistance but in Jigsaw cooperative learning students help one another because the achievement of each member means the whole group succeeds in completing the task and created new knowledge.

The Jigsaw practice supports hesitant and reserved students in overcoming their fears through the building of rapport with each other simultaneously improving their communication skills (Parmar & Parmar 2020). The positive attributes include development of oratory and expressive skills, boosting of confidence and improvement of friendship as well as improved personal and public accountability. Left for a while to work by themselves, students develop their teaching and listening skills. They come to the realisation that none of them can complete the task without assistance from other group members (Boştină-Bratu & Negoescu, 2016). The other components of the curriculum that are outside of the scope of a student's responsibilities can only be learned by paying close attention to classmates. Such activities motivate students to value and support the efforts of others (Karacop & Diken, 2017). Furthermore, every student learns about their abilities and what they can offer the group (Boştină-Bratu & Negoescu, 2016). Jigsaw cooperative learning ensures that learning is enjoyable,

refreshing, and even the topics that are less interesting become more interesting (Parmar & Parmar 2020).

Consistent with the above, Fennel (1992 cited by Azmin, 2015) came to the conclusion from his study that the majority of the students liked and found value in the Jigsaw technique. Conversely, just 0.05% of the participants said they favoured the old-fashioned lecture mode of instruction.

Jigsaw cooperative learning promotes autonomous thought, active investigation and research, clear expression, and cooperation in addition to encouraging peer engagement and improving student competencies such as critical thinking, problem-solving, and communication (Huang *et al.*, 2013). The cooperative learning approach not only helps students feel less anxious, but it may also boost their self-assurance, excitement, initiative, inventiveness, and creativity.

4.8.5   Student Participation and Active Learning

Jigsaw cooperative learning emphasises distributing learning tasks among all group members, which not only improves student engagement but also gets every student involved in the learning activities, amplifying the benefits of cooperative learning (Huang *et al.*, 2013). Data from the experimental/Jigsaw class and the control class were compared by Kartika *et al.* (2020), who discovered that the experimental class had higher levels of accomplishment than the control class. This suggests that in order to attain the learning goals, Jigsaw learning activities require students to be more engaged during the learning process. Students feel accomplished as a consequence, and they are motivated to study more about the subject matter.

4.8.6   Learning Independence and Confidence

Jigsaw cooperative learning affects students' capacity for independent learning. In order to create and keep to their study schedules, students learn to not rely on others to perform their chores and obligations (Fitriyah & Fauzi, 2020). This occurs when they develop confidence in their own abilities. Jigsaw cooperative learning can be a useful instructional strategy for improving learning responsibility and engagement, according to Yamada *et al.* (2016:491). According to Bentley and Hill's (2009) evaluation of the

benefits and drawbacks of reciprocal peer teaching, "75% of students strongly agreed that their sense of obligation to master the material they were assigned to teach to their peers was increased, and 67% reported an increase in their level of confidence with respect to the material."

Students might have noticed that different groups in Jigsaw had varying degrees of proficiency. The Bentley and Hill research, cited by Costouros (2020), found that student unhappiness with the student involvement was the most prevalent drawback of peer teaching. Receiving insufficient instruction from their peers was cited as the biggest disadvantage of correlative peer teaching by 39% of students. One student in their research voiced dissatisfaction about the team member's lack of preparation, poor performance, and failure to complete the task by the deadline. Clearly, it is crucial for the lecturer to facilitate the learning process and intervene if the need arises. This is why, in every teaching and learning process, students should provide feedback on their learning activities and in addition, the lecturer should also provide the feedback to confirm the findings and result and thus avoid students' uncertainties and frustration.

4.8.7   Personal and Social Relationships

Implementing the Jigsaw strategy assists students in becoming effective communicators amongst themselves and creating good interpersonal relationships (Huang *et al.,* 2013). Within an environment conducive to learning, communication skills and students' consciousness to cooperate and help each other are cultivated (Lv, 2014). Each student is required to collaborate with others in a group with the aim of attaining a common purpose. While each member of the group is accountable for their portion of the task, teaching one another is the common objective. Students are responsible for both their own learning and the learning of the entire group; they do not work alone. Importantly, rather than merely concentrating on themselves, students feel a feeling of belonging to the group and a desire to help the group as a whole. For that reason, students develop a greater capacity for tolerance, understanding, and acceptance of the diversity and perspectives of others (Costouros, 2020).

By the same token, peer connectivity and an increase in social contact can encourage the development of new connections. It is possible that students will be more inclined to assist one another in other courses and/or course work. There is a chance that high

achievers may engage with underperforming students in the tutoring process. Study groups may be formed, and students will be open to sharing their knowledge as well as learning resources (Costouros, 2020). Accordingly, students develop high self-esteem and improved social relationship skills (Azmin, 2015).

4.8.8 Cognitive and Critical Thinking

Jigsaw learning enhances cognitive skills including analysis, synthesis, and assessment. Additionally, this approach improves the capacity for attachment, particularly in terms of evaluation, attitude determination, value organisation, and even the development of lifestyle (Fitriyah, & Fauzi, 2020). Notably, assessments at a university of technology are guided by the revised Bloom's taxonomy which means the Jigsaw experience strengthens student cognitive abilities resulting in improved performance of students.

Critical thinking is the ability to think clearly and rationally about what to do or what to believe. Ting and Abdullah (2020) describe critical thinking as a means to boost a result through facilitation of excellent problem solving and decision making. Critical thinkers are students who communicate openly and effectively and have the courage to revise their own views where necessary. However, Facione (2015) applied critical thinking techniques by posing pertinent queries, outlining an issue, reviewing the available data, deciphering assumptions, synthesizing data, drawing conclusions, and developing persuasive arguments whilst Abrami *et al.* (2008) regards critical thinking a by-product of instructions that greatly impact cooperation amongst students. As observed by Karen (2018), the use of cooperative teaching techniques including role playing, dialogues, computer simulations, and projects helps students enhance their critical thinking, communication, and implementation abilities. To attain the objectives of self-fulfilment, employability, lifelong learning, and social inclusion, all of the aforementioned abilities are today essential competences (Renganathan, 2020).

Even though it only makes up 20% of class time, jigsaw cooperative learning is still successful. Among its many benefits are the following:

- Group projects alternate with individual work.

- The groups are not fixed; rather, the class is split up into smaller groups that interact with one another and overlap, enabling actual networking.

- Every member of the subgroups is interdependent, and all the components of cooperative work are present: individual responsibility (each student is significant in the group and must play a part and execute a task), energizing interaction, and mutual respect (they listen to each other, brainstorm and share ideas).

- Everyone in the group feels appreciated; a community of excellence is formed by a group of professionals who each feel unique and competent in their own fields.

- Everyone becomes a spokesperson and accountable for a certain component of the jigsaw since they meet in small groups (Boştină-Bratu & Negoescu, 2016:410).

The Jigsaw cooperative model has several advantages which include allowing students to develop creativity and the ability to solve problems according to their own will; the relationship between a lecturer and the students can be balanced and that allows the learning atmosphere to be very familiar so that it allows harmony; motivating lecturers to work more actively and creatively; and able to integrate various learning approaches, namely class, group, and individual approaches (Purwanty *et al.,* 2020:468).

However, there are several drawbacks that have a detrimental impact on how well students participate in group projects. Negative group behaviours like social avoidance and the full effect may happen when students feel that their individual efforts do not match the performance of their group. Some restrictions must be taken into account for the lecturer to properly use this method. Members of the group may feel that their individual contributions are not essential if the cooperative tasks assigned to them are not difficult enough to demand teamwork. Additionally, students are prone to social avoidance if the cooperative work does not include enough tasks for each group member to contribute. The group members who must perform the majority of work are inconvenienced by this volatility (Karacop & Diken, 2017).

4.9   CHALLENGES IN A JIGSAW CLASSROOM

Recent research has shown that lecturers have difficulties while implementing the Jigsaw cooperative learning strategy. These challenges include conceptual, pedagogical, cultural, and political conundrums; a shift in the role of the lecturer and the curriculum's emphasis; multiple student assignments; non-traditional assessment; staff relations; a focus on constructivism that is officially supported; and tensions between theory and practice (Wang & Ha, 2013). In the following subsections, challenges relating to organising groups and absenteeism, organising groups and absenteeism and peer teaching and assessment are presented.

4.9.1   Organising Groups and Absenteeism

Teamwork or collaborative effort are at the core of the Jigsaw learning technique or teaching puzzle. Coordination of collective work/group projects might be challenging for the lecturer to grasp. Forming varied groups is typically the lecturer's first obstacle while planning the lesson. When organising a class, the first issue that the lecturer generally faces is forming diverse groups. Because all heterogeneous groups have equivalent learning components to compete with, the major objective is to create balanced teams comprised of all sorts of students (Boştină-Bratu & Negoescu, 2016). Bringing together social and interpersonal students, introverts and extroverts, and logical and mathematical students are a few examples. Besides, even in a balanced group, some students may struggle to complete the allotted learning components because they are inherently weaker than others. Due to these factors, the lecturer must make sure that these students' work is not of a poorer calibre than that of the other students, or else they face the risk of unintentionally endangering the team's performance and inciting discontent in the other team members (Boştină-Bratu & Negoescu, 2016). If the Jigsaw experience is set up as a work group, guidelines are provided for setting up the group process that will result in the final products (Amador & Mederer, 2013). In so doing, the lecturer will find this helpful, to create balanced teams of students.

Boştină-Bratu and Negoescu (2016) mentioned that brighter students who are uninterested in the offered learning task become bored and cease attending classes. Absenteeism on the day of Jigsaw groups is one inevitable issue with using this

methodology in the classroom. The efficiency of Jigsaw cooperative learning is hampered by absenteeism and a general lack of initiative (Costouros, 2020). As a result, the lecturer must be prepared with a concise summary of each topic that may be provided to groups that are lacking members. Often, it doesn't matter if one student is absent; the same learning goals may be met with one learning component missing, however students tend to feel more at ease when they have access to all of the material (Amador & Mederer, 2013). Because students are often more motivated in educational contexts that promote healthy competition, the puzzle approach could stimulate this kind of interaction (Boştină-Bratu & Negoescu, 2016).

4.9.2   Peer Teaching and Assessment

According to Bentley and Hill's study (as quoted by Costouros, 2020), the most common negative of combined peer teaching is student discontent on the receiving side. The most significant disadvantage of reciprocal peer teaching is that most students in the learner position said they did not receive appropriate training from their peers. This is due to lack of preparation, dedication, and time management of peer teachers which results in frustrated receiving students. Hänze and Berger (2007) discovered that Jigsaw cooperative learning had a beneficial influence on the experience of competence and when comparing grades of Jigsaw approach and traditional method participants. Participants in jigsaw learning received better scores for the content they taught but lower grades for the material presented by their classmates.

Jigsaw cooperative learning was not perceived as a successful technique by students, according to studies, since they were unable to learn using this method, found it difficult, and did not find the activity enjoyable. Some students lacked confidence in their classmates' capacity to appropriately instruct them. Slish (2005) discovered that students' resistance to Jigsaw cooperative learning was mostly due to their overall dislike of group work. Students that were willing to work thought that they ended up performing the majority of the work while others did not participate (Costouros, 2020). The capacity to hold students' interest is one sign of effective learning. The capacity to capture students' attention is one sign of effective learning. The lecturers' efforts to

teach the topic to the students through the arrangement of the classroom's materials are connected to the learning activity (Amin *et al.*, 2020). As observed by Feeney and Meyers (2016), students do not advance at the same rate, hence it is critical for lecturers to have a clear understanding of the advancements and accomplishments of every student in the class and to modify their instruction accordingly. Contrarily, it's critical for students to be conscious of their own development in order to create better learning techniques (Boştină-Bratu & Negoescu, 2016).

Specifically with formative assessment methods, the constructivist classroom paradigm has issues with student evaluation. The focus is more on the process than the result when learning is constructedivist. The evaluation instrument used to identify abilities that require improvement and those that have been mastered presents a problem in this situation. Due to the two-pronged nature of assessment by the lecturer, they must consider both the process and the outcome of students' active learning (Feeney & Meyers, 2016).

In accordance with the learning task's objectives, the lecturer assesses either the group's final product, such as grammar exercises, essays, or oral presentations, or their group procedures, such as their capacity to meet deadlines, contribute equitably, and communicate effectively, or both. The evaluation can rely on peer evaluations, where each team member evaluates the contributions of his or her teammates, team evaluations, where each team member documents and evaluates their own contributions to the team, or self-evaluations, where each team member does all three (Boştină-Bratu & Negoescu, 2016).

4.10   CONCLUSION

The calibre of education affects a country's growth and success. Education is a deliberate endeavour to accomplish a number of objectives, and effective education delivery aids students in achieving their learning objectives. Teaching and learning are interrelated ideas that must be considered together in the educational process. While

teaching demonstrates what the lecturer needs to do, learning demonstrates what the student must accomplish as the subject of the lesson (Kartika *et al.*, 2020).

This chapter looked at the Jigsaw cooperative learning technique. The Jigsaw technique is a teaching exercise that may be utilised in the classroom by lecturers of all levels. Most lecturers have modified and used improved versions of the Jigsaw approach in their classrooms because it stimulates student engagement in a classroom where students play an important role in achieving success, and success is dependent on active collaboration and participation (Karacop & Diken, 2017). Students generally had good perceptions of the approach since it allowed them to participate more actively in class and boosted their self-confidence and enthusiasm in studying. Nevertheless, despite the fact that the Jigsaw-based learning technique is well-structured, several study results have revealed that bright and high-achieving students don't always enjoy using it because it frequently doesn't need them to complete challenging tasks (Nduji *et al.*, 2020).

The chapter, devoted to describing the Jigsaw method of cooperative learning, began with understanding its origins and development. Using the Jigsaw method in the classroom was discussed with the role that the lecturer and students play to ensure its success. The chapter also built an understanding of the value of this method, principles, qualities and benefits. The chapter ended off with outlining the challenges that might occur.

CHAPTER 5

RESEARCH METHODOLOGY AND DESIGN

5.1   INTRODUCTION

Chapters 2,3 and 4 provided important background to the investigation contained in this research. These chapters include a literature review on theories and cooperative learning strategy and the Jigsaw cooperative learning strategy This chapter elaborates on the methodology used in this study. The discussion commences with the research paradigm, which includes the research design. The discussion then reports on the research methodology suitable for this study, the sampling and how participants were selected. A description of the procedures used to develop and administer research instruments for collecting data on the use of Jigsaw strategy on the teaching and learning of Business Education at a university of technology then follows. A description of data analysis procedures and the quality when using quantitative and qualitative method were highly considered. The chapter concludes with ethical considerations adhered to in this study.

5.2   RESEARCH METHODOLOGY AND DESIGN

5.2.1   Research Paradigm

In social research, the term 'paradigm' is used to refer to the philosophical assumptions or to the basic set of beliefs that guide the actions and define the worldview of the researcher (Kaushik & Walsh, 2019). The paradigm is the foundation of modern social science which uses both quantitative and qualitative methods where methods are matched to the specific questions. Paradigms are conceptual and practical tools that are used to solve specific research problems and each paradigm has a different perspective on the axiology, ontology, epistemology, methodology, and rhetoric of research (Kaushik & Walsh, 2019).

Pragmatism is not committed to one system of philosophy or reality. Pragmatist researchers focus on the 'what' and 'how' of the research problem. Early pragmatists rejected the scientific notion that social inquiry was able to access the truth about the

real world solely by virtue of a single scientific method. While pragmatism is seen as the paradigm that provides the underlying philosophical framework for mixed methods research, some mixed methods researchers align themselves with the transformative paradigm. The pragmatic paradigm places the research problem as central and applies all approaches to understanding the problem. In response to research questions, data collection and analysis methods are chosen as those most likely to provide answers and insights into questions (Creswell, 2003).

In view of the above, this doctoral study proceeds from a pragmatic paradigm. The rationale for choosing this paradigm is to enable the researcher to identify and explore the features/components of essence to design a modified Jigsaw cooperative learning strategy to enhance academic performance of Business Education students at a university of technology.

Pragmatist philosophy holds the notion that human actions can never be separated from the past experiences and from the beliefs that have originated from those experiences. This relates to the theory of constructivism, that validates this study and which is emphasised as an approach to learning that holds that students actively construct their own knowledge, and that knowledge is determined by the pre knowledge and the past experiences of the student (*cf.* Chapter 2, Section 2.3). Thus, students' thoughts are intrinsically linked to action. They take action based on the possible consequences of their actions and use the results of their actions to predict the consequences of similar actions in the future. A major contention of pragmatist philosophy is that meaning of human actions and beliefs is found in their consequences. External forces do not determine humans; students themselves can shape their experience through their actions and intelligence. In addition, pragmatists believe that reality is not static - it changes at every turn of events (Kaushik & Walsh 2019). This implies that students' knowledge develops with every effective learning encounter they experience in the classroom as pragmatists believe that the process of acquiring knowledge is a continuum.

Pragmatist scholars believe that objective reality exists apart from human experience and that this reality is grounded in the environment and can only be encountered through experience. A major basis of pragmatist philosophy is that knowledge and

reality are based on beliefs and habits that are socially constructed. That is, the total knowledge in this world is socially constructed, although some versions of those social constructions match individuals' experiences more than others (Kaushik & Walsh 2019). The paradigm creates a room for the exploration of how student experience, knowledge and actions are shaped through social interaction.

Furthermore, post positivism typically backs quantitative methods and deductive reasoning while constructivism supports qualitative approaches. As opposed to the above-mentioned paradigms which are one sided, pragmatism embraces the two extremes and offers a flexible and more reflexive approach to research design (Kaushik & Walsh 2019). In mixing methods, debates abound as to how this mix is being attained and acknowledges either combination, concurrent, sequential or parallel mixes of research designs (Creswell, 2014). By adopting this stance, the pragmatist researcher is able to select the research design and the methodology that is relevant to the research question. Ultimately, it is the researcher who makes the choices and decides which question is important and what methodology is appropriate, and those choices are certainly influenced by the aspects of socio-political location of the researcher, personal history and belief system (Kaushik & Walsh, 2019).

5.2.2   Research Design

The researcher opted for a mixed methods approach using both survey and focus group interviews to collect data. The mixed methods approach proceeds from the post-positivist-constructivist paradigm (pragmatic research design), which is also a merger of both the positivist and constructivist paradigms, to have a broader scope of the topic under study. Mixed methods research is a type of research in which a researcher combines elements of qualitative and quantitative approaches, for instance, the researcher uses qualitative and quantitative viewpoints, data collection, analysis and inference techniques for the purpose of breadth and depth of understanding and corroboration (Van Wyk & Taole, 2015). Tashakkori and Creswell (2007) see mixed methods research as a research approach where the investigator collects and analyses data, integrates the findings and draws inferences using both qualitative and quantitative approaches or methods in a single study or programme of inquiry. A mixed methods design is useful to capture the best of quantitative and qualitative

approaches. As a result, researchers learn more about the world when they have both quantitative and qualitative methodologies at their disposal than when they are confined to only one approach (Creswell, 2003).

Notably, the researcher selected the mixed methods research approach, which blends qualitative and quantitative research components to expand and strengthen the study's conclusions for the benefit of both the researcher, academics and students in higher learning. In all studies, mixed methods research is about heightened knowledge and validity. The design as a product should be of sufficient quality to achieve multiple validities legitimation, which refers to the mixed methods research study meeting the relevant combination or set of quantitative, qualitative, and mixed methods validities in each research study. Among other reasons, the researcher chose the mixed methods approach for the purpose of triangulation as it offers convergence, corroboration, correspondence of results from different methods.

It is of utmost importance that the researcher decides whether the qualitative data and the quantitative data have equal weight in drawing conclusions or giving higher importance to one form of data over the other. With appropriate rationale, the researcher can make one form of data secondary and subservient to the other form of data. For instance, the researcher may use people's qualitative responses in follow-up interviews to shed light on the earlier (quantitative) responses to questionnaire items. Secondly, the researcher may decide how to effectively integrate the quantitative and qualitative findings when interpreting and reporting them (Leedy & Ormrod, 2014).

The study adopted a sequential mixed methods design which was conducted in two phases, which is **QUAN ⟷ QUAL**. The notation used between the QUAN and QUAL that resembles an arrow shows the sequential collection of quantitative and qualitative data. In a sequential method, priority is given to the notions in upper case and less priority to those in lower case (Creswell, 2014). In this study, the methods in use have been represented equally with the upper case to indicate that both the quantitative and qualitative data collection and analysis processes have been given the same priority. Figure 5.1 gives a graphic representation of a mixed methods approach.

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┌─────────────────────────┐
│     Research Problems    │
└─────────────────────────┘
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Constructivist ontology
Interpretivist
epistemology

Philosophical school of
thought, world view

Realist/Objectivist
ontology
Empiricist epistemology

Qualitative
Methodology

Methodology

Quantitative
Methodology

Flexible Design

Design

Fixed Design

-Interview
Focus Group Discussion
Observation, etc.
Non-numerical analysis

Instruments/Methods

Questionnaire
Tests, Inventories,
Check list, etc.
Statistical analysis

(Source: Adapted mixed method approach from work by Tuli. 2010)

Figure 5.1: Graphic presentation of the mixed methods approach

5.2.3   Research Methods

As previously mentioned, this research followed a sequential mixed methods design where quantitative and qualitative data collection and analysis processes were given the same priority. Creswell (2009) states that in quantitative research, a theory is an interrelated set of constructs (variables) formed into propositions or hypotheses that specify the relationship among variables, in terms of magnitude or direction. A theory might appear in a research study as an argument, a discussion or a rationale and it helps to explain or predict phenomena that occur in the world. Quantitative data was collected by means of a survey in the format of questionnaires that were handed out

to the sampled participants. Leedy and Ormrod (2005) point out that survey research is chosen when specific traits need to be quantified in terms of incidents, frequency and distribution.

According to Creswell (2009), qualitative validity means that the researcher checks for the accuracy of the findings by employing certain procedures that must be plausible, credible, trustworthy, and therefore defensible. The types of qualitative validity are descriptive validity, interpretive validity and theoretical validity. However, one potential threat to qualitative validity is researcher's bias which tends to result from selective observation, selective recording of information and personal views and perspectives to affect how data is interpreted and how the research is conducted (Johnson & Christensen, 2004).

Qualitative research design is concerned with understanding the social phenomena from the participant's perspectives. McMillan and Schumacher (2014) state that qualitative research begins with assumptions, a worldview, the philosophy and the study of research problems, thereby investigating and interpreting the meaning of individuals or groups ascribed to a social or human problem. To study this problem, qualitative researchers use an emerging qualitative approach to enquiry, collection of data, data analysis that is inductive and establishes patterns or themes. The final report of this study includes the expressions of participants, the reflections of the researcher, description, and interpretation of the problem.

Gay *et al*. (2011) confirm that qualitative research attempts to collect, analyse, and interpret data to gain insights into phenomenon under investigation. It therefore involves the simultaneous collection of a wealth of narrative and visual data over an extended period occurring in a natural setting sensitive to the people and places under study (Gay *et al.,* 2011). Furthermore, qualitative research requires researchers to understand the participant's perspective using qualitative methods to interact extensively and intimately with participants during the study, using time-intensive data collection methods. Gay *et al.* (2011) emphasise that qualitative research problems and methods tend to evolve as understanding of the research context and participants deepen.

A qualitative research approach was deemed to be appropriate enabling the interpretation of data and it allowed the verification of quantitative data and provided a means to evaluation of particular policies, practices and innovations (Leedy & Ormrod, 2014) and build on early data (Newman and Benz (1998 as quoted by McMillan & Schumacher, 2014).

5.2.4   Population and Sampling

The target population of this study consisted of all BEd.SP and FET Economic and Management Science Education students enrolled at a university of technology According to Awang, Muhammad and Sinnaduai (2012), population refers to any group of individual persons from which samples are taken for measurement or for study purposes. According to McMillan and Schumacher (2014), a population is a group of elements or cases, whether individuals, objects, or events, that conform to specific criteria and to which we intend to generalise the results of the research (McMillan & Schumacher 2014).

A sample is part of a statistical population whose properties are studied to gain information about the whole population. It is also known as respondents when dealing with people selected from a larger population. Sampling is the act, process or technique to select a suitable sample, or respondents or part of populating for the purpose of determining parameters or characteristics of the whole population. Sampling is part of a statistical practice or a subset of individual observations within a population of individuals intended to yield some knowledge about the population of concern, especially for the purpose of making presumptions based on statistical inference (Awang *et al.,* 2012). The sample for this study consisted of 80 Business Education students of which 35 students pursue Economic and Management Sciences (EMS) 1 as a subject and 45 students' study for Business Education methodology IV as a subject at a university of technology.

The purpose of sampling is to draw conclusions about populations from samples, this means that the research enables the researcher to determine a population's characteristics by directly observing only a sample from a population. A sample rather than a complete enumeration of the population is used for many reasons, particularly the cost, but the researcher should be prepared to cope with the dangers of using

samples (Awang *et al.,* 2012). Participants are selected for the purpose of ensuring the sample is of a similar composition as the population (Skott & Ward 2013). A mode of sampling involves selecting participants on the basis that they will have certain characteristics or experiences (Braun & Clarke 2013).

In quantitative research, a sample is considered to be adequate if it enables obtained results to be generalised to the whole population. It is also based on an estimate of how representative the sample is of the whole population, that is, how well, in terms of probability, the sample statistics conform to the unknown population parameters. For the QUAN phase of the research, the researcher selected a sample of 35 EMS 11 students out 65 students enrolled for the module and all 45 BMF IV students. The sample had to be accurate to enhance the validity and reliability of the study. The researcher deemed both the first-year class group and the fourth-year class group would represent the Economic and Management students.

In qualitative research, a sample is adequate if it allows all possibilities or aspects of the researched phenomenon to be identified. In other words, when the researcher reaches the conclusion that collecting more data and increasing the sample does not bring any new information, data saturation has been achieved. It is based on an estimate that further expansion of the sample will not bring any further element to the research. Because of this approach, the sample is partly selected in an ongoing way during the process of data collection and analysis. In both cases, one has to have a well-defined population and an adequate sample (Bless, Higson-Smith & Sithole 2013). Qualitative research sampling is purposeful. The researcher selects those individuals that yield the most information about the topic under investigation (Leedy & Ormrod 2014). Purposive sampling requires that information be obtained about variations among the sub-units before the sample is chosen. Thereafter, the researcher searches for information-rich key informants, groups, places or events to study. In the QUAL phase of the research, Business Education students were deemed typical of students that represent the diverse perspectives on issues relating to teaching and learning of Business Education at a university of technology. The power and logic of purposeful sampling is that a few cases studied in-depth yield many insights about the topic, whereas the logic of probability sampling depends on

selecting a random or statistically representative sample for generalisation to a larger position (McMillan & Schumacher 1993).

5.2.5 Research Instruments

In both QUAN and QUAL research, certain tools or instruments are used to collect data. The tools include interviews, testing, non-experiments, questionnaires and observations (Bless, Higson-Smith & Sithole, 2006). In this research, questionnaires were used for the QUAN phase and interviews for the QUAL phase.

5.2.5.1 Closed structured questionnaires

A closed structured questionnaire in the form of a 4-point Likert scale was used to collect data for the quantitative phase from both the EMS 11 class group and BMF IV class group. Questionnaires are forms used in a survey design that respondents in a study complete and return to the researcher. Respondents supplied basic demographic information about themselves and responded to questions using the four-point Likert scale: 1=Strongly Agree (SA), 2=Agree (A), 3=Disagree (D) and 4=Strongly Disagree (SD)

Closed-ended question, sometimes referred to as 'forced choice questions', were used as they provided a range of answers from which the respondents could choose and that these types of questions are associated with quantitative designs. Creswell (2014) refers to them as questions posed by the researcher where the respondent responds to preset response options. Questions of this kind are fairly quick and easy to answer. As indicated by Lambert (2012), closed ended questions are effective at getting factual data from the respondents and they provide brief indications of preferences and opinions. In addition, the data collected using such questions can be easily counted and analysed.

An effective strategy to strengthen the findings is the use of piloting the instruments. Creswell (2014) refers to piloting as a procedure that enables a researcher to make changes in an instrument based on feedback from a small number of individuals who complete and evaluate the instrument. For this purpose, five students who had similar characteristics to the actual participants were part of the piloting of the questionnaire. This procedure enabled the researcher to refine the questionnaire as well as identify

any omissions and ambiguities. Sharing the revised questionnaire with two colleagues assisted in scrutinising the document which helped to inform the refinement of the questionnaire (Hilton & Hilton, 2020).

5.2.5.2 Semi structured focus group interviews schedule

Focus group interviews were employed for all student participants who took part in this study. The researcher wanted to collect shared understanding and establish participant's opinions, views, attitudes, and beliefs with regard to the Jigsaw intervention. Purposive focus groups interview interactions yielded the required information as the participants were similar in characteristics and cooperative with each other (Creswell, 2014). Interviewing students in groups means that new ideas can be sparked off between them (Lambert, 2012). It is suggested that the interviewer develop an interview schedule prior to the interviews to help guide the interviews but not restrict them.

For the qualitative aspect, the researcher selected a single group of participants and practised the intervention with them. Following the experimentation, the researcher had an informal dialogue with the group and realised that some students did not feel free to voice their opinions since the researcher was the facilitator during the Jigsaw intervention. Hence, the researcher opted to appoint an interviewer and a researcher who is familiar with the interview process. The motive for such appointment was for the student participants to freely voice their opinions and maintain anonymity.

5.3   THE JIGSAW INTERVENTION

The basic premise behind the pre-test, intervention and post-test was to enhance student performance in Business Education. This involves obtaining a pre-test measure of a test to establish a baseline prior to administering some treatment or intervention such as a Jigsaw learning approach. At the end of the intervention, a post-test, using the same measure is administered to evaluate the effect of the intervention.

5.3.1   The Pre-Test for EMS 11 and BMF IV

A pre-test is given to students at the beginning of a course to determine their initial understanding of the measures stated in the learning objectives. EMS 11ES classes

took place during the first semester (6 months) whilst BMF IV took place in the second semester. EMS 11 appeared twice per week in the morning sessions, on Mondays at 09:25am and Wednesdays at 11:05am. BMF IV had one morning session per week for 80 minutes at 7:55am. Both EMS 11 and BMF IV class groups wrote 2 pre-tests in a semester, of which Test 1 pre-test for EMS 11 took place at the beginning of the first semester and Test 2 pre-test took place in the middle of first semester. The same applied to BMF IV whose Test 1 pre-test was administered at the beginning of second semester and Test 2 pre-test mid-semester. The purpose of the Test 1 and Test 2 pre-tests was to measure whether there is a statistically significant difference in the performance of Business Education students before and after being exposed to Jigsaw. In addition, questionnaires were also administered to both class groups at the start of the semester and comprised Sections 1 and 2, to understand students' views regarding classroom practices, before the intervention.

5.3.2   The implementation of the jigsaw Intervention

EMS 11

As classes resumed in February, the jigsaw intervention took place in the third week of February and continued throughout the semester. The first was used as an introductory session to inform students about the Jigsaw approach, its purpose, and the reasons for conducting this research with them. EMS 11 students had 12 weeks of available to them of which one class session per week was conducted as a jigsaw cooperative learning experience (excluding the first week of April which was scheduled for Test 2 pre-test). The jigsaw intervention took place on Wednesdays after Monday's teaching of content by the lecturer. At times, the intervention continued on thee Monday of the following week depending on the subject matter and its level of difficulty as well as the time allocated for learning activities. For lesson preparation, the lecturer used e-learning platform, Blackboard to upload worksheets prior to class sessions and for reminding students of aspects related to the subsequent lesson.

BMF IV

BMF IV classes resumed in the last week of July after two weeks of student teaching practice in schools. The intervention took place in August every second week since the class group was only allocated one session per week. The class sessions,

inclusive of content teaching, ran for 12 weeks inclusive of a week of introductory sessions and Pre-test 1 at the beginning of the semester and Pre-test 2 class session mid-September. At most, two subject content aspects were dealt with per month as a result of the in-depth fourth-year learning content and its level of difficulty. For students to keep abreast of content, at the end of every class session, on Mondays, the lecturer would inform students of the upcoming academic work and then upload worksheets on Blackboard three days prior to the jigsaw intervention sessions. Blackboard is a software and a learning management system providing a platform for e-learning as it helps lecturers in conceptualising the various courses, course structures and curriculum thus facilitating interaction with online students.

For preparation/planning, the lecturer used learning platform (Blackboard) to upload worksheets for each student group prior to class sessions. During the intervention sessions, students started by working individually on different allocated tasks within home groups and then proceeded to the expert groups where they discussed the same learning task intensively and shared common knowledge and insights. On completion, expert groups dissolved and returned to their home groups where each member, as an expert to that specific section, shared new knowledge with other home group members. Though the lecturer facilitated groups effectively, more attention was given to expert groups to ensure that members took informed and creative reports as feedback to their home groups.

5.3.3   The Post-Test for EMS 11ES and BMF IV

The post-test was conducted just after completion of the course to determine what the students had learned. After the jigsaw intervention, the same assessment (Test 1) administered during the pre-test phase, was written individually by students to ascertain the value in the Jigsaw approach in enhancing students' academic performance. In addition, Section 3 of the questionnaire was completed by students of both class groups, to understand student views regarding classroom practices, after the intervention.

The marks for pre-test and post-test were compared to determine whether there was a decline or improvement in student marks after the intervention and this is reported in Chapter 6. The findings from the questionnaire are also reported in Chapter 6.

5.4   DATA COLLECTION PROCEDURES AND PROCESSING

5.4.1   QUAN phase

Prior to distributing questionnaires, the researcher obtained permissions from the two institutions involved in this study: the University of South Africa (UNISA) and Central University of Technology (CUT). Following the permissions from the ethic committees of the two universities, the researcher had ethical considerations in mind while conducting this study. The researcher requested one of the senior professors to administer the structured questionnaires to the respondents. The dates, time and location were scheduled with the respondents at the university. The consent form was signed at the venue by all the respondents before administering the questionnaires. After the questionnaire was completed by the respondents the questionnaire was recollected from the senior professor for data analysis by the qualified statistician.

The researcher had ethical considerations in mind while conducting this study. The researcher requested one of the senior professors to administer the structured questionnaires to the respondents. The dates, time and location were scheduled with the respondents at the university. The consent form was signed at the venue by all the respondents. After the questionnaire was completed by the respondents the questionnaire was recollected from the senior professor for data analysis by the citified statistician. Table 5.1 gives an indication of the sections contained in the questionnaire.

Table 5.1: Design of the structured questionnaire

Section	Item	Number of Questions	Total
A	Biographic data	5	**5**
B &C	Teaching and learning	4	**4**
	Principles of Jigsaw	4	**4**
	Jigsaw	4	**4**
	Self-efficacy	4	**4**
	Goal orientated	6	**6**
Total		**22**	**22**

5.4.2   QUAL phase

Certain students were willing to share their learning experiences regarding the Jigsaw strategy. The researcher then provided the appointed interviewer, a colleague, with the focus group interview schedule to become familiar with them and to review them.

The researcher negotiated a date and time that was convenient for the participants as they had limited time available to study for the November examinations. The researcher took note of the travel logistics because most participants reside on the outskirts and some outside the city where the university is situated.

The researcher and the colleague appreciated the time and willingness to take part in the interviews. Before the interviews were conducted, consent forms were completed by the participants. Participants were assured by the senior professor who was the interviewer of the time allocated for the qualitative interviews to be at most an hour with about 30 minutes or less for pre-and post-interview chats (Braun & Clarke, 2013).

The researcher selected a location for the interviews where the participants would feel comfortable, familiar with the space and safe, and that was within the university premises. The semi structured focus groups interviews were conducted in one of the three staff boardrooms in the faculty of humanities. The selected boardroom was considered peaceful and quiet for both the interviewer and the participants to concentrate and, the recording to be crystal clear. The venue had less distractions, comfortable seats, a table, air conditioning and at most, privacy for participants to ensure anonymity (Braun & Clarke, 2013).

The interviewer, a colleague received informed consent as permission from interviewees to firstly participate in the interviews and then permission for the interviews to be recorded. The researcher was interested in the detail of participant's response, about their experiences and perspectives, hence the researcher opted to use audio recordings for a precise record of the interviews. At the beginning of every interview session as ascertained from the voice recorder, participants were encouraged to speak freely about their learning experiences, which became easier with the researcher as the lecturer being excused from the sessions.

Lambert (2012) urges interviewer to be attentive to participants who may want to dominate the discussions and those participants who may be hesitant about expressing their views during interviews. This move made transcription easier as the researcher accessed the rich and detailed information shared by the participants. Braun and Clarke (2013) assert that a successful interview can be conducted if the researcher avoids writing in a notebook and concentrating solely on the participants. However, the interviewer can make brief notes to keep track of things for follow up or for generating new questions. In addition, it can be worthwhile to make notes after each interview to record details of the participant's self-presentation and surroundings and reflect on the personal reaction to the participant and things that might be needed to work on with regard to interview techniques (Braun & Clarke, 2013).

5.5   DATA ANALYSIS

5.5.1   Quantitative Data Analysis

Before employing any statistical procedure and before making a single computation the researcher should look closely, enquiringly, and critically at the data and explore various ways of organising them. The researcher must be aware of the dynamics and the phenomena that are active within the data to determine whether those phenomena are important to the purpose of the research or not. The researcher overlooks nothing to provide a clear, logical rationale for the procedure used to arrange and organise data (Leedy & Ormrod, 2014). In this research, a qualified statistician was appointed and informed about the aim of the research and provided with all the information relevant to the choice of an instrument appropriate for analysing the data. Hence, the statistician carried out pure statistics through the use of Statistical Package for the Social Sciences (SPSS) version 27 to extract insights from data by means of ad hoc analysis and predictive analytics. SPSS version 25 was used to test the statistically significant difference of students' academic performance before and after the Jigsaw intervention. According to Hilton and Hilton (2020), inferential statistics are used to make inferences about the data whereby a researcher make comparisons to determine whether two or more sets of data differ or to examine the relationships among two or more variables. Using t-tests in this study enabled the researcher to determine whether there is a significant difference between the means of two sets of

data. This was done by comparing pre-test data with the post-test data. The comparison of the same group is known as a paired-sample t-test. A paired-sample t-test was restricted to single classes, was conducted to compare the means of the pre- and post-test scores to determine the p-value, which suggested whether the intervention impacted the students' performance.

Table 5.2: Cronbach's alpha for study variables

Cronbach' alpha coefficients	Internal consistency levels
$\alpha \leq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6.5 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

(Source: adapted from Sekaran (2000 in Nyengane, 2007:74)

All items had a coefficient greater than 0.8 which is adequate as stipulated by Sekaran (2000) in Nyengane (2007:74).

5.5.1.1 *Validity*

Validity is the strength of the research conclusions, inferences, or propositions. Validity can be defined as the best available approximation to the truth or falsity of a given inference, proposition or conclusion (Awang *et al.,* 2012). McMillan and Schumacher (1993) refer to validity as whether a measure accurately captures reality which is obviously problematic in qualitative research and given the emphasis of multiple realities for successful qualitative research. Validity is affected by the researcher's perception of validity in the study and his/her choice of paradigm assumption. As a result, many researchers have developed their own concepts of validity and have often

generated or adopted what they consider to be more appropriate terms, such as, quality, rigor and trustworthiness (Awang *et al.*, 201226).

According to Leedy and Ormrod (2014), the validity of the overall research effort includes its internal validity which is the extent to which the study's results can be generalised to a larger population or broader context. In the context of this study, the threat to internal validity is to compare the academic performance of the 30 EMS 11 students who were not willing to form part of the Jigsaw study. External validity which is the extent to which the study's results can be generalised to a larger population or broader context and, its general credibility and trustworthiness, is the extent to which others perceive the findings of the study.

5.5.1.2 *Reliability*

Reliability is the consistency of the measurement, or the degree to which an instrument measures the same way each time it is used under the same conditions with the same respondents/participants. In short, it is the repeatability of the measurement. A measure is considered reliable if a person's score on the same test given twice is similar. Reliability cannot be measured if it is estimated. There are two ways that reliability is usually estimated: test/re-test and internal consistency (Awang *et al.,* 2012). Triangulation, cross examination, member checking, consensus and auditing can be used to measure reliability.

In this study, a questionnaire was designed, and a large sample was used to ensure reliability. A pilot study was implemented to detect the mistakes and errors for correction. The researcher implemented triangulation using qualitative and quantitative methods which includes data from student questionnaires, student interviews and the analysis of student tests and November examination results of both EMS 11 and BMF IV class groups. The researcher used the entrance level and the exit level of study (first years and fourth years) as respondents and sources of data for an intensive study and results. The use of multiple sources, methods, investigators, or theories to increase the credibility of the results akin to the use of questionnaire and interviews in this study, to collect information about students' learning experiences of Jigsaw approach (Awang *et al.*, 2012:21). Care was taken by distributing questionnaires in the lecture hall and conducting the interviews in the boardroom, to

have responses from students who are representative of student population at a university of technology.

Test/re-test is the more conservative method to estimate reliability. Simply put, the idea behind test/re-test is that you should get the same score on test 1 as you do on test 2. The three-main components to this method are as follows: implement your measurement instrument at two separate times for each subject; compute the correlation between the two separate measurements and assume there is no change in the underlying condition between test 1 and test 2 (Awang *et al.*, 2012).

One common way of computing correlating values among the questions on your instruments is by using Cronbach's Alpha. The Cronbach's alpha value for each test definition varies from Section B ($\alpha < 0.78$) to Section C ($\alpha < 0.88$) and is thus all above the appropriate acceptable value of 0.7, while the average Cronbach's alpha value is $\alpha < 0.81$ (is this the overall score for whole questionnaire), which is reliable as an instrument (Wells & Wollack, 2003:5). In fact, the significance of the typical inter-item correlation is acceptable (see Table 5.2).

The computer output generates one number for Cronbach's alpha, and just like a correlation coefficient, the closer it is to one, the higher the reliability estimate of the instrument. Cronbach's alpha is a less conservative estimate of reliability than test/re-test (Awang *et al.,* 2012:2). The primary difference between test/re-test and internal consistency estimates of reliability is that test/re-test involves two administrations of the measurement instrument, whereas the internal consistency method involves only one administration of that instrument (Awang *et al.,* 2012).

In order for the research data to be used in the analysis, they must be both reliable and valid. Without that, the data are not practical to be measured or analysed. In other words, the research does not achieve the level of appropriateness and trust (Awang, *et al.*, 2012).

5.5.2 Qualitative Data Analysis

The interview recordings that were handed back to the researcher were listened to, transcribed and developed into themes and subthemes by the researcher. According to Braun and Clarke (2013), the analysis of qualitative data essentially begins with a

process of immersion in the data. The aim of this phase is to become intimately familiar with the dataset's content, and to notice things that might be relevant to the research questions. To absorb the relevant data, the researcher adopted a similar pattern of repeated listening to the recorded interviews. Braun and Clarke (2013) stated that paying attention to the interview audio helps the researcher to notice things of interest and those that are irrelevant. It is advisable to keep a record for future reference. This process is observational and casual, rather than systematic and precise.

5.5.2.1 *Measures for trustworthiness*

Trustworthiness is defensible and establishes confidence in the findings (Awang *et al.,* 2012). Bless *et al.* (2013) are of the opinion that trustworthiness depends on how much trust can be given to the research process and findings. The concept of trustworthiness evaluates the quality of quantitative research based on four concepts: credibility, dependability, transferability, and confirmability.

5.5.2.1.1 *Credibility*

Credibility refers to the truth of the data or the participant views and the interpretation and representation of them by the researcher (Polit & Beck, 2014). Credibility is enhanced by the researcher describing his or her experiences as a researcher and verifying the research findings with the participants. A qualitative study is considered credible if the descriptions of student experience are immediately recognised by individuals that share the same experience. To support credibility when reporting a qualitative study, the researcher should demonstrate engagement, methods of observation, and audit trails (Cope, 2014:89). In this study, both the researcher and the supervisor had frequent meetings to share knowledge and experiences for the study not to be biased with preferences that could compromise the credibility of the research findings. The researcher implemented and took advice of peer colleagues. To demonstrate engagement, methods of observation, and audit trails ensured the honesty of research participants during data collection by the use of repetitive questioning and probes as the researcher/lecturer was on site as the participant and observer for a year (each class group per semester) to ensure consistency of data collection.

5.5.2.1.2 Dependability

Dependability refers to the stability of the data over time and over the conditions of the study (Polit & Beck, 2014). Dependability refers to the constancy of the data over similar conditions (Polit & Beck, 2012; Tobin & Begley, 2004). This can be achieved when another researcher concurs with the decision trails at each stage of the research process. Through the researcher's process and descriptions, a study would be deemed dependable if the study findings were replicated with similar participants in similar conditions (Cope, 2014:89). On that account, test papers for Business Education were set according to the content taught which was expected to yield reliable results of student scores (Appendixes G and H). The research design and its implementation provided a detailed information on how the research was carried out and the ethical considerations adhered to. Both the Likert-scale questionnaire and the focus group discussions were used to ensure the dependability of the study.

5.5.2.1.3 Transferability

A qualitative study is said to have met the criterion of transferability if the results have meaning to individuals not involved in the study and that readers can associate the results with their own experiences. Researchers should provide sufficient information on the informants and the research context to enable the reader to assess the findings' capability of being fit or transferable. However, the criterion of transferability is dependent on the aim of the qualitative study and may only be relevant if the intent of the research is to make generalizations about the subject or phenomenon (Cope, 2014:89). The researcher provided detailed information on the type of the educational institution where the research was conducted, the type of participants who were selected for the qualitative phase of data collection, data collection methods employed in the research and the time period over which data was collected. More detailed information was provided for readers who sought to understand and compare what was done in the study with other studies, to have access to all the necessary information related to the current research.

5.5.2.1.4 Confirmability

Confirmability refers to the researcher's ability to demonstrate that the data represent the participant's responses and not the researcher's biases or viewpoints (Polit & Beck, 2012). The researcher can demonstrate confirmability by describing how

conclusions and interpretations were established and exemplifying that the findings were derived directly from the data. In reporting qualitative research, this can be exhibited by providing rich quotes from the participants that depict each emerging theme (Cope, 2014). The researcher as a Business Education lecturer, found it imperative to use both the survey and focus group discussions to obtain much data as possible. The researcher also ensured that there was an in-depth description of the research methods used for this study to allow for the integrity of the results. The thesis was submitted for Turnitin Originality Report System to circumvent plagiarism.

5.5.3   Member Checking

Member checking refers to the practice of checking the analysis of data with the participants. The researcher was able to present an oral report of research to a handful of BMF IV participants who attended the video call since at the time they had completed their studies and were considered graduates. The oral report was meant to provide the feedback to the participants and invite them to comment on the trustworthiness or authenticity of what had been produced. Researchers disclose the information to avoid misrepresenting the views of the participants and to ensure that there is a match between the interpretations and representation of their participant's experiences and the participant's own understandings of their experiences. Most importantly, member checking is a type of credibility check and regarded as a qualitative version of reliability because it aims to determine whether the results are credible, dependable and form the point of view of the participants. Braun and Clarke (2013) recommend that participants are informed from the outset about this important practice in the research process so that it is known to them to participate on the basis of feedback (Braun & Clarke, 2013). Notwithstanding the importance of member of member checking, the researcher had the audio recordings of interviews on the audio tape and transferred them to 'cloud' files for back up. Experienced qualitative researchers have offered a variety of standards that might be used to evaluate a qualitative study. These include purposefulness, explicitness of assumptions and biases, rigor, open-mindedness, completeness, coherence, persuasiveness, consensus and usefulness (Leedy & Ormrod, 2014).

5.5.4 Triangulation

Triangulation is a millennia-old mathematical process for determining the distance or location of an object, combining independent measures from separate locations to provide an accurate reading. In educational research, it refers to a process whereby two or more methods of data collection are used to examine the same phenomenon, with the aim of getting as close to the truth of the object of study as possible. Hilton and Hilton (2020) define triangulation as the use of multiple sources, methods, investigators or theories to increase the credibility of the results akin to the use of questionnaire and interviews in this study, to collect information about students' learning experiences of Jigsaw approach. This allows one data set to enhance and complement the other and it is a way of strengthening analytical claims to procure a richer and more accurate conclusions. This argument is similar to Jane Ussher's, the Australian based health psychologist who debated on the use of Jigsaw metaphor to advocate multi methods. To quote; "it is only when we put the different pieces of the Jigsaw together that we see a broader picture and gain some insight into the complexity of our research" (Braun & Clark, 2013:286).

In addition, Rossman and Rallis (2016) argue that an unethical study is not a trustworthy study. A study must be ethically conducted with sensitivity to power dynamics. Ethical procedures determine the integrity of the project, its wholeness and coherence. Arguably, the ethical clearance process for university projects is often lengthy depending on the subjects and interventions and summary of the whole research design involved in the study, so that the ethics board can consider the validity of the scientific proposal and the positive contribution to knowledge.

To ensure trustworthiness, the researcher conducted this investigation in an ethical manner and used data triangulation as much as possible. Sustaining the trustworthiness of a research report depends on the issues, and quantitatively, this is discussed as validity and reliability.

5.7 THE RESEARCHER'S ROLE

For the credibility of social research, it is crucial for social researchers to clarify their role within the research. The researcher is a lecturer in the Faculty of Humanities, Language and Social Sciences department at a university of technology and teaching

pre-service teachers enrolled for Economic and Management Science Education. The researcher had concerns and was eager to investigate the aspects that play a role in the academic success of students enrolled for Business Education.

Throughout this study, the researcher stayed objective and neutral and abstained from judging the participants based on their level of study and knowledge. The researcher remained focused on the research objectives and maintained the ethical practices when dealing with the participants, colleagues, class sessions, time allocations and rules that governs the university. Interviews were carried out in a booked venue (staff boardroom) and questionnaires were distributed in lecture halls at the end of class sessions. Participant's commitment to the Jigsaw intervention in lecture halls and contribution to the study was taken seriously and their inputs were incorporated into the study as part of the recommendations made for this study. To guard against bias, the researcher invited a colleague to observe the handing out of questionnaires to both class groups. A similar process was followed with interviews.

5.8   ETHICAL CONSIDERATIONS

Data collection should be ethical, and it should respect individuals and sites. The researcher followed the legal codes and ethical principles by obtaining permission from ethic committees at the two universities: University of South Africa (UNISA) (Appendix A) and Central University of Technology (CUT) (Appendix B). Attached information sheets to each questionnaire, explaining the purpose of research were given to students and the informed consent process was also part of ethical practice (see Appendix C and D). Protecting the anonymity of individuals by assigning numbers to return instruments and keeping identity of individual confidential offered privacy to participants. One common way of keeping personal data confidential is to assign various pseudonyms to different participants and to use those pseudonyms both during data collection and in the final research report (Bless *et al.,* 2017; Leedy & Ormrod, 2014). While collecting data and member checking, the researcher viewed data as confidential and could not share it with other participants outside of the project. Most importantly, the researcher respected the wishes of those students especially the students who chose not to participate in the study. Olsen *et al.*, (2010) suggests that the informed-consent form must state that the participant is not required to take

part in the study, they may withdraw at any time, and this should be shown to every participant.

According to Creswell (2014), observing in lecture halls may disturb learning by distracting students, especially when you observe them closely and write down observations about their behaviour on checklists. By obtaining permissions and clearly communicating the purpose of the study before you collect data, one can lessen the reservations some individuals may have about the researcher's presence in their educational setting.

5.9   CONCLUSION

This chapter focused on the research design and methodology, discussing how both quantitative and qualitative instruments were used in collecting data through the completion of a questionnaire and a focus group interviews. To investigate the shift made by the Jigsaw approach towards the teaching and learning of Business Education students, the researcher conducted a mixed methods approach framed within the pragmatic paradigm. Because the collection of data involved a mixed methods approach, the use of questionnaires and interviews to elicit information about the application of the Jigsaw approach to the teaching of Business Education, was discussed in detail. The issues of target population, the sample and the quality of quantitative and qualitative research were also discussed. The researcher indicated how research ethics were considered throughout the research process. The next chapter presents the analysis and interpretation of data obtained from the questionnaires and student interviews.

CHAPTER 6

PRESENTATION OF RESULTS, ANALYSIS AND INTERPRETATION

6.1   INTRODUCTION

To achieve the aim of this study, a mixed-method investigation was conducted to gather information on the following research questions:

1. How does Jigsaw as a teaching and learning strategy enhance the teaching and learning of Business Education?
2. Which principles of Jigsaw are prone to improve the teaching and learning of Business Education students?
3. What significant difference is found in the performance of Business Education students before and after being exposed to Jigsaw?
4. Do students using Jigsaw, as a cooperative learning approach
   - display high levels of achievement,
   - become goal oriented,
   - develop greater positive self-efficacy beliefs regarding their abilities in Business Education?

In this study, the analysis and interpretation of the research results were done by means of measurement t-tests in accordance with the three sections of the questionnaire. The data are presented in the form of frequency tables, paired t- test tables and interviews.

6.2   DESCRIPTIVE QUANTITATIVE DATA ANALYSIS

Participants, who were students enrolled for Economic and Management Sciences, Education and had participated in the Jigsaw intervention, were requested to complete questionnaires. Questionnaires were handed out to the participants under the guidance of a colleague and the responses were collected at a given time.

6.2.1   Review of Participants

A total of 80 questionnaires were distributed among two class groups: Business Methodology (BMF:FET) IV and Economic and Management Science (EMS:SP) I.

Table 6.1: Participating EMS education students

Class group	Total distributed	Total returned	% Returned
BMF 42ES	45	40	87%
EMS 11ES	35	20	57%
Total	**80**	**60**	**75%**

Table 6.1 depicts the number of questionnaires distributed to and returned by EMS education students at a university of technology.

Table 6.2: Class groups of student participants

Class Group				
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	BMF42ES	40	66.7	66.7	66.7
	EMS11ES	20	33.3	33.3	100.0
	Total	**60**	**100.0**	**100.0**	

Table 6.2 depicts the two class groups of students who received and completed the questionnaires. and, they entail 66.7% of Business Methodology (BMF 42ES) fourth year students and 33.3% Economic and Management Science (EMS 11ES) first year students who completed the questionnaire.

6.2.2   Section A: Biological Information of Business Education Students

Section A comprising questions 1 to 5 requested the biographical information of students. The questions included gender, age, year completed matric, home language and the environment where they grew up. The data obtained are presented in Tables 6.3 to 6.7.

Table 6.3: Gender of student participants

		Frequency	Percent	Valid Percent	Cumulative Percent
		Gender			
Valid	Male	23	38.3	38.3	38.3
	Female	37	61.7	61.7	100.0
	Total	**60**	**100.0**	**100.0**	

The most significant findings related to student demographics are in terms of gender. Table 6.3 indicates that male respondents comprised 38.3% in comparison to 61.7% female respondents.

The percentages emerging from the data on gender for the EMS I group is not reflective of the number of students particularly that students were not consistent with their class attendance during the Jigsaw intervention.

Table 6.4: Age of student participants

		Frequency	Percent	Valid Percent	Cumulative Percent
		Age			
Valid	16-20 years	14	23.3	23.3	23.3
	21-25 years	40	66.7	66.7	90.0
	26-30 years	4	6.7	6.7	96.7
	31-35 years	2	3.3	3.3	100.0

Table 6.4 illustrates the ages of student participants for this study. Most (90%) students who participated in the study were young, with ages raging between 16-25 years. Only 10% were in the category of 26-35 years. Data shows that majority of respondents were within the parameters of pursuing a first degree.

Table 6.5: Year of matric completion of student participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Year completed Matric					
Valid	2012 and earlier	7	11.7	11.7	11.7
	2013-2014	16	26.7	26.7	38.3
	2015-2016	23	38.3	38.3	76.7
	2017-2018	14	23.3	23.3	100.0
	Total	**60**	**100.0**	**100.0**	

It emerged from this data analysis in Table 6.5 that most (38.3%) of the respondents to questionnaires completed their matric between 2015 and 2016. This implies that few students (*f=6*) were not admitted to EMS a year after their completion. This was followed by 38.4% of students who seem to not have completed their junior degree within the regular timespan or may have transitioned from a different course to EMS.

Table 6.6: Home language of student participants

		Frequency	Percent	Valid Percent	Cumulative Percent
Home language					
Valid	Afrikaans	3	5.0	5.0	5.0
	isiXhosa	8	13.3	13.3	18.3
	Sesotho	36	60.0	60.0	78.3
	Setswana	8	13.3	13.3	91.7
	isiZulu	5	8.3	8.3	100.0
	Total	**60**	**100.0**	**100.0**	

South Africa has several ethnic groups and languages. The Free State Province is mostly inhabited by Sesotho, Setswana and Afrikaans speakers. Table 6.6 depicts that the majority (60.0%) of students speak Sesotho as a home language, followed by isiXhosa and Setswana (13.3%). isiZulu speakers amount to 8.3% whilst only 5.0% of

the students have Afrikaans as their home language. As English is used as a medium of instruction in a university classroom, this implies that all the respondents have English as a second language.

Table 6.7: Environment where student participants grew up

Environment where you grew up					
		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	Farm	3	5.0	5.0	5.0
	Location	37	61.7	61.7	66.7
	Village	8	13.3	13.3	80.0
	City	12	20.0	20.0	100.0
	Total	**60**	**100.0**	**100.0**	

Based on the information in Table 6.7, most (61.7%) of the students in this study grew up in a location and 20.0% grew up in the city. Location refers to the often underdeveloped racially segregated urban areas that, from the late 19th century until the end of apartheid, were reserved for non-whites, namely Indians, Africans and Coloureds. Those who grew up in the city were followed closely by those students who grew up in the village (13.3%) and on farms respectively. Those who grew up on farms formed the least number (5.0%). Data revealed that 81.7% students from developing areas gained access to EMS as compared to minority (18.3%) of respondents from under-developed areas.

What follows is the analysis of students' self-efficacy beliefs and goal orientation before and after Jigsaw intervention of Sections B and C of their questionnaire.

6.2.3   Pre- and Post-Tests

As previously mentioned in Chapter 5, a pre-test was done prior to the implementation of the Jigsaw intervention and on completion, a post-test was done. SPSS version 27 was run to ascertain the significant difference in students' performance of Business Education before and after the Jigsaw intervention in the two class groups, the EMS

11 class group and Business Methodology IV class group. Detailed responses in the form of pre-test and post-test scores for EMS 11 class group and the Business Methodology IV class group are presented in the tables below. The difference is statistically significant if P<0.05 and not statistically significant if P>0.05.

A paired T-test was conducted in order to compare Test Mark 1 with Test Mark 2 and to compare the progress mark with the exam mark for the subject EMS1. Cohen's d effect size was calculated in order to indicate the magnitude for the difference between two means. The following rule of thumb were used to interpret the Cohen's d: A value of 0.2 represents a small effect size. a value of 0.4 represents a medium effect size and a value of 0.6 represents a large effect size (Cumming & Calin-Jageman, 2018).

Table 6.8: Paired Samples Statistics for EMS 1

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	S1 T1	35.73	40	16.612	2.627
	S1 T2	58.35	40	16.780	2.653
Pair 2	Progress	50.54	35	11.690	1.976
	% Exam	63.17	35	16.196	2.738

Table 6.9: Paired Samples Test for EMS 1

		Paired Differences			95% Confidence Interval of the Difference
		Mean	Std. Deviation	Std. Error Mean	Lower
Pair 1	S1 T1 - S1 T2	-22.625	16.978	2.684	-28.055
Pair 2	Progress - % Exam	-12.629	16.482	2.786	-18.290

As can be seen from the table, Test Mark 2 (M=58.35), was statistically significantly higher than Test Mark 1 (M=35.73), t(39) = -8.428, p<0.001, d= -1.33. According to

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Cumming and Calin-Jageman (2018), the difference has a large effect size indicating that the intervention had a high influence on the improvement of marks.

Likewise the exam mark (63.17), was also statistically significantly higher than the progress mark (M=50.54), t(34) = -4.533, p<0.001, d= -0.766. According to Cumming and Calin-Jageman (2018), this difference also has a large effect size indicating that the intervention had a major influence on the improvement student performance

Table 6.10: Paired Samples Test for EMS 1

		Paired Differences			
		95% Confidence Interval of the Difference			
		Upper	T	Df	p-value
Pair 1	S1 T1 - S1 T2	-17.195	-8.428	39	.000
Pair 2	Progress - % Exam	-6.967	-4.533	34	.000

Table 6.11: Paired Samples Test for EMS 1

			Standardiser[a]	Point Estimate
Pair 1	S1 T1 - S1 T2	Cohen's d	16.978	-1.333
		Hedges' correction	17.143	-1.320
Pair 2	Progress - % Exam	Cohen's d	16.482	-.766
		Hedges' correction	16.666	-.758

A paired T-test was conducted in order to compare Test Mark 1 with Test Mark 2 and to compare the progress mark with the exam mark for the subject BMF42. The Cohen's d effect size was calculated in order to indicate the magnitude for the difference between two means. The following rule of thumb were used to interpret the Cohen's

d: A value of 0.2 represents a small effect size. A value of 0.4 represents a medium effect size. A value of 0.6 represents a large effect size (Cumming & Calin-Jageman, 2018).

Table 6.12: Paired Samples Statistics for BMF IV

		Mean	N	Std. Deviation	Std. Error Mean
			Paired Samples Statistics		
Pair 1	S1 T1	69.65	40	16.791	2.655
	S1 T2	84.30	40	5.743	.908
Pair 2	Progress	77.10	40	9.724	1.537
	S1 EM	50.73	40	16.695	2.640

Table 6.13: Paired Samples Correlations for BMF IV

		N	Correlation	Sig.
		Paired Samples Correlations		
Pair 1	S1 T1 & S1 T2	40	.310	.052
Pair 2	Progress & S1 EM	40	.216	.180

Table 6.14: Paired Samples Test for BMF IV

		Paired Differences			95% Confidence Interval of the Difference	
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper
Pair 1	S1 T1 - S1 T2	-14.650	15.975	2.526	-19.759	-9.541
Pair 2	Progress - S1 EM	26.375	17.409	2.753	20.807	31.943

As can be seen from the tables, Test Mark 2 (M=84.30) was statistically significantly higher than Test Mark 1 (M=69.65), t(39) = -5.8, p<0.001, d= -.917. According to

Cumming and Calin-Jageman (2018), the difference has a large effect size indicating that the intervention had a significant influence on the improvement of marks.

In contrast, the exam mark (M=50.73), was statistically significantly lower than the progress mark (M=77.10), t(39) = 9.582, p<0.001, d= 1.515. According to Cumming and Calin-Jageman (2018), this difference also has a large effect size indicating that the intervention had a major influence on the improvement student performance.

Table 6.15: Paired Samples Test for BMF IV

Paired Samples Test		T	df	Sig. (2-tailed)
Pair 1	S1 T1 - S1 T2	-5.800	39	.000
Pair 2	Progress - S1 EM	9.582	39	.000

Table 6.16: Paired Samples Effect Sizes for BMF IV

Paired Samples Effect Sizes			Standardiser a	Point Estimate	
Pair 1	S1 T1 - S1 T2	Cohen's d	15.975	-.917	
		Hedges' correction	16.131	-.908	
Pair 2	Progress - S1 EM	Cohen's d	17.409	1.515	
		Hedges' correction	17.578	1.500	

6.2.4 Sections B and C: Students' Self-Efficacy Beliefs and Goal Orientation Before and After the Jigsaw Intervention

This part of the questionnaire focused on the students' cooperative work, self-efficacy beliefs and goal orientation before and after Jigsaw intervention. Sections B and C of

the questionnaire, relating to questions 1-22, intended to ascertain whether students were goal oriented and had greater positive self-efficacy beliefs <u>before</u> Jigsaw intervention in EMS I and Business Methodology IV Education and <u>after</u>.

The following tables, Tables 6.17 to 6.60, present the significant difference in the cooperative work (achievement), goal orientation and self-efficacy of Business Education students before and after the Jigsaw intervention. In addition, detailed responses in the form of pre-test and post-test scores for Business Methodology IV class group are also presented to indicate the pre-test scores and post-test scores for EMS 11 class group. The difference is statistically significant if P<0.05 and not statistically significant if P>0.05.

Table 6.17: I avoid responding to probes from the lecturer in BMF IV

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre Mean	Post SE
Q1	I avoid responding to probes from the lecturer in BMF IV	2.280	2.400	40	0.64	0.9	0.101	0.142

	Paired Differences						
			95% Confidence Interval of the Difference				
Mean	STD	SE	Difference		T	Df	P
			Lower	Upper			
0.13	0.82	0.13	-0.14	0.39	0.96	39	0.34

Table 6.17, where students responded to question 1 from Section B of the questionnaire, reflected the mean difference of 0.13, t(39) of 0.96, p-value of 0.34 which is greater than 0.05. This indicate that there is no significant statistical difference in between the pre and post intervention scores. This means that there was no difference brought about by the intervention to BMF IV students avoiding responding to probes by the lecturer.

Table 6.18: I avoid responding to probes from the lecturer in EMS1

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q1	I avoid responding to probes from the lecturer in EMS 11	2.40	2.55	20	0.60	0.76	0.13	0.17

			95% Confidence Interval of the Difference				
Mean	**STD**	**SE**	**Lower**	**Upper**	**T**	**Df**	**P**
0.15	0.49	0.11	-0.08	0.38	1.37	19.00	0.19

Note: Header spanning "Paired Differences" above Mean, STD, SE, and the Confidence Interval columns.

Similarly, to Table 6.17 EMS 11 student's responses in Table 6.18 show no significant statistical difference in question 1 between the pre and post intervention scores. This is displayed through EMS 11 mean difference of 0.13, t(39) of 1.37 and p-value of 0.19, which is greater than 0.05.

Table 6.19: I persevere through the difficult concepts of BMF IV

		Pre Mean	**Post Mean**	**N**	**Pre STD**	**Post STD**	**Pre SE**	**Pre SE**
Q1	I persevere through the difficult concepts of BMF IV	3.000	3.080	40	0.453	0.572	0.072	0.09

			95% Confidence Interval of the Difference				
Mean	**STD**	**SE**	**Lower**	**Upper**	**T**	**Df**	**P**
0.08	0.53	0.08	-0.09	0.24	0.90	39	0.37

Table 6.19 representing question 2, showed that there is no significant statistical difference on students' perseverance through difficult concepts of BMF IV, This shows between the pre and post intervention scores, with the mean difference of 0.08, t(39) of 0.90 and a p-value of 0.37.

Table 6.20: I persevere through the difficult concepts of EMS 1

		Pre Mean	**Post Mean**	**N**	**Pre STD**	**Post STD**	**Pre SE**	**Post SE**
Q2	I persevere through the difficult concepts of EMS 11	3.00	3.15	20	0.56	0.67	0.13	0.15

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
0.15	0.93	0.21	-0.29	0.59	0.72	19.00	0.48

Table 6.20 above, is of same note that there is no a significant statistical difference in question 2 between the pre and intervention scores stating mean difference of 0.15, t(19) of 0.72 and p-value of 0.48.

Table 6.21: I take responsibility of my academic failures

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q3	I take responsibility of my academic failures	3.25	3.55	40	0.67	0.55	0.11	0.09

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
0.30	0.82	0.13	0.04	0.56	2.31	39	0.03

As can be seen in Table 6.21, there is a significant statistical difference in question 3 between the pre and post intervention scores. It can be identified from the table that there is a mean difference of 0.30, t(39) = 2.31, p-value of 0.03 which is above 0.05. This implies that, students took responsibility of their academic failures because of the application of the Jigsaw intervention.

Table 6.22: I take responsibility of my academic failures

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q3	I take responsibility of my academic failures	3.50	3.45	20	0.69	0.69	0.15	0.15

Paired Differences							
Mean	**STD**	**SE**	**95% Confidence Interval of the Difference**		**t**	**Df**	**P**
			Lower	**Upper**			
-0.05	0.51	0.11	-0.29	0.19	-0.44	19.00	0.67

In contrast to BMF IV student's responses in Table 6.21, the Jigsaw intervention with EMS 11 respondents in Table 6.22, indicated that there is no significant statistical difference as indicated in pre and post intervention scores. The end product proves that with a mean difference of -0.05, t(19) of -0.44 and p-value of 0.67.

Table 6.23: I tend to take a narrow view of the allocated tasks

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q4	I tend to take a narrow view of the allocated tasks	2.58	2.53	36	0.77	0.91	0.13	0.15

Paired Differences							
Mean	**STD**	**SE**	**95% Confidence Interval of the Difference**		**T**	**Df**	**P**
			Lower	**Upper**			
-0.06	0.83	0.14	-0.34	0.22	-0.40	35	0.69

Table 6.23 designates that there is not a significant statistical difference in question 4 between students' taking a narrow view of the allocated tasks and the application of Jigsaw intervention. This is shown by the pre and post intervention scores with mean difference of -0.06, t(35) of -0.40 and the p-value of 0.69 noting that only 36 students responded to question 4.

Table 6.24: I tend to take a narrow view of the allocated tasks

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q4	I tend to take a narrow view of the allocated tasks	2.70	2.85	20	0.98	1.04	0.22	0.23

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.15	0.88	0.20	-0.26	0.56	0.77	19.00	0.45

There is not a significant statistical difference in Table 6.24, question 4 between the pre and post intervention scores presenting a mean difference of 0.15, t(19) of 0.77 and p-value of 0.45.

Table 6.25: I always commit to my academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q2.5	I always commit to my academic goals	3.51	3.62	39	0.60	0.63	0.10	0.10

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
0.11	0.79	0.13	-0.15	0.36	0.81	38	0.42

Relating to students committing to academic goals, Table 6.25 shows that there is not a significant statistical difference in question 5 between the pre and the post intervention scores stating the mean difference of 0.11, t(38) of 0.81 and a p-value 0.42. This question related to all the students with the exception of one respondent.

Table 6.26: I always commit to my academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q5	I always commit to my academic goals	3.35	3.40	20	0.67	0.68	0.15	0.15

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.05	0.61	0.14	-0.23	0.33	0.37	19.00	0.72

Students' response in question 5 reveals no significant statistical difference in between pre and post intervention scores with mean difference of 0.05, t(19) of 0.37 and a p-value of 0.72.

Table 6.27: I don't believe that my actions and decisions make difference in my learning achievements

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q6	I don't believe that my actions and decisions make difference in my learning achievements	1.80	1.55	40	0.85	0.64	0.14	0.10

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
-0.25	0.81	0.13	-0.51	0.01	-1.96	39	0.06

Table 6.27 presents no significant statistical difference in question 6 between the pre and post intervention scores where students believe that their actions and decisions make a difference in their learning achievements: mean difference of -0.25, t(39) of -1.96, p-value of 0.06. It can be identified from the table that there is an average of

mean of 1.80 to mean of 1.55. The p-value of 0.06 is slightly above p=0.05 for significance, hence, a very minimal impact.

Table 6.28: I don't believe that my actions and decisions make difference in my learning achievements

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q6	I don't believe that my actions and decisions make difference in my learning achievements	2.45	2.40	20	0.83	1.10	0.18	0.24

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE			T	df	P
			Lower	Upper			
-0.05	1.00	0.22	-0.52	0.42	-0.22	19.00	0.83

There is not a significant statistical difference in question 6 between the pre and post intervention scores with mean difference of -0.05, t(19) of -0.22 and p-value of 0.83.

Table 6.29: When I do better than usual, it is often because of the extra effort I put in

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q2.7	When I do better than usual, it is often because of the extra effort I put in	3.75	3.53	40	0.44	0.72	0.07	0.11

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE			T	Df	P
			Lower	Upper			
-0.22	0.83	0.13	-0.49	0.04	-1.71	39	0.10

With regard to students succeeding in their academics because of putting extra effort, no significant statistical difference is found in comparison to question 7 between the

pre and post intervention scores. Table 6.29 revealed such state of difference through a mean difference of-.022, t(39) of -1.71 and a p -value of 0.10.

Table 6.30: When I do better than usual, it is often because of the extra effort I put in

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q7	When I do better than usual, it is often because of the extra effort I put in	3.45	3.50	20	0.83	0.89	0.18	0.20

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Lower	Upper	T	df	P
0.05	1.19	0.27	-0.51	0.61	0.19	19.00	0.85

There is no significant statistical difference in question 7 between the pre and post intervention scores with mean difference of 0.05, t(19) of 0.19 and a p-value of 0.85.

Table 6.31: I strive to overcome and master the challenges I encounter in BMF IV

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q8	I strive to overcome and master the challenges I encounter in BMF IV	3.28	3.45	40	0.55	0.55	0.09	0.09

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Lower	Upper	T	Df	P
0.17	0.59	0.09	-0.02	0.37	1.86	39	0.07

According to Table 6.31, there is no significant statistical difference in comparison to question 8 between the pre and post intervention scores indicating mean difference of 0.17, t(39) of 1.86, p- value of 0.07. The application of the Jigsaw intervention aimed

to overcome and master the challenges encountered in Business Methodology and the result is minimal and since the p-value of 0.07 is slightly above p-value 0.05 for significance.

Table 6.32: I strive to overcome and master the challenges I encounter in EMS 1

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q8	I strive to overcome and master the challenges I encounter in EMS1	3.50	3.75	20	0.51	0.44	0.11	0.10

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Difference		t	df	P
			Lower	Upper			
0.25	0.44	0.10	0.04	0.46	2.52	19.00	0.02

Interestingly, it is noticeable that Table 6.32 above shows that there is a significant statistical difference in question 8 between the pre and post intervention scores. EMS 11 responds as opposed to BMF IV, conveying a mean difference of 0.25, t(19) of 2.25 and p-value of 0.02 which is less than 0.05 hence the significant difference.

Table 6.33: I quickly lose confidence in my learning abilities once there are uncertainties

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q9	I quickly lose confidence in my learning abilities once there are uncertainties	2.41	2.46	37	0.87	0.93	0.14	0.15

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Difference		T	Df	P
			Lower	Upper			
0.05	1.05	0.17	-0.30	0.41	0.31	36	0.76

As can be seen in Table 6.33 above, affirming the mean difference of 0.05, t(36) of 0.31 and p-value of 0.76, means that there is no significant statistical difference in question 9 between pre and post intervention scores.

Table 6.34: I quickly lose confidence in my learning abilities once there are uncertainties

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q9	I quickly lose confidence in my learning abilities once there are uncertainties	2.45	2.65	20	0.69	0.81	0.15	0.18

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Lower	Upper	t	df	P
0.20	1.01	0.23	-0.27	0.67	0.89	19.00	0.39

There is no significant statistical difference in with question 9 between the after and before intervention scores with mean difference of 0.20, t(19) of 0.89 and a p-value of 0.39.

Table 6.35: I believe goals that require extra effort to achieve are beyond my capabilities

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q10	I believe goals that require extra effort to achieve are beyond my capabilities	2.38	2.05	40	0.95	1.04	0.15	0.16

Paired Differences							
			95% Confidence Interval of the Difference				
Mean	STD	SE	Lower	Upper	t	df	P
-0.33	1.27	0.20	-0.73	0.08	-1.62	39	0.11

Table 6.35 indicates no significant statistical difference with question 10 between the pre and post intervention scores with mean difference of -0.33, t(39) of -1.62 and p-value of 0.11. The above table revealed the difference between the application of Jigsaw student's belief that goals that extra effort to achieve are beyond my capabilities before and after the application of Jigsaw.

Table 6.36: I believe goals that require extra effort to achieve are beyond my capabilities

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q10	I believe goals that require extra effort to achieve are beyond my capabilities	2.80	2.70	20	1.15	1.30	0.26	0.29

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
-0.10	1.17	0.26	-0.65	0.45	-0.38	19.00	0.71

There is no significant statistical difference in question 10 between the pre and post intervention scores with mean difference of-0.10, t(19) of-0.38 and p-value of 0.71.

Table 6.37: I put more effort into completing my learning tasks

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q11	I put more effort into completing my learning tasks	3.49	3.67	39	0.51	0.48	0.08	0.08

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.18	0.64	0.10	-0.03	0.39	1.74	38	0.09

Table 6.37 relating to question 11 is the extent to which students put more effort into completing learning tasks between the pre and post intervention scores resulted with the mean difference of 0.18, t(38) of 1.71 , p-value of 0.09. There is no statistical significance, as the p-value is slightly above p 0.05 with 39 respondents.

Table 6.38: I put more effort into completing my learning tasks

		Mean	N	STD	SE
Q11	I put more effort into completing my learning tasks	3.35	20	0.67	0.15
		3.50	20	0.61	0.14

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
-0.15	0.75	0.17	-0.50	0.20	-0.90	19.00	0.38

There is no significant statistical difference in question 2.11 between the pre and post intervention scores with mean difference of -0.15, t(19) of -0.90 and p-value of 0.38.

Table 6.39: I commit more when a task given is challenging

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q12	I commit more when a task given is challenging	2.95	3.24	38	0.84	0.85	0.14	0.14

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.29	0.77	0.13	0.04	0.54	2.32	37	0.03

Table 6.39 addresses participant's extent of commitment when a task given is challenging in question 12 and presents a significant statistical difference between the pre and post intervention scores indicating the mean difference of 0.29, t(37) of 2.32

and a p-value of 0.03. This means that the p-value is less than p 0.05 hence the statistical difference.

Table 6.40: I commit more when a task given is challenging

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q12	I commit more when a task given is challenging	3.05	3.20	20	0.60	0.77	0.14	0.17

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.15	0.67	0.15	-0.16	0.46	1.00	19.00	0.33

There is not a significant statistical difference in question 12 between the pre and post intervention scores with mean difference of 0.15, t(19) of 1 and a p-value of 0.33.

Table 6.41: I have no confidence in getting help from my peers

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q13	I have no confidence in getting help from my peers	1.85	1.97	39	0.71	0.71	0.11	0.11

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.12	0.86	0.14	-0.15	0.41	0.93	38	0.36

Table 6.41, question 13, which indicates students' response of the extent of no confidence in getting help from peers, shows that there is no significant statistical difference between the pre and post intervention scores, with mean difference of 0.12, t(38) of 0.93 and p-value of 0.36.

Table 6.42: I have no confidence in getting help from my peers

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q13	I have no confidence in getting help from my peers	2.10	1.80	20	0.97	0.95	0.22	0.21

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
-0.30	0.66	0.15	-0.61	0.01	-2.04	19.00	0.06

There is not a significant statistical difference with question 13 between pre and post intervention scores with a mean difference with -0.30, t(19) of -2.04 and a p-value of 0.06.

Table 6.43: I only have confidence in getting assistance from BMF IV lecturer

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q14	I only have confidence in getting assistance from my BMF IV lecturer	1.85	2.26	39	0.81	0.99	0.13	0.16

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.41	0.91	0.15	0.12	0.71	2.82	38	0.01

There is a significant statistical difference in question 14 between the pre and post intervention scores with mean difference of 0.41, t(38) of 2.82 and, p-value 0.01. Surprisingly, 39 respondents only have confidence in getting assistance from the BMF IV lecturer with lesser p-value of 0.01 than the standard p-value of 0.05 as compared to other questions showing a significant statistical difference.

Table 6.44: I only have confidence in getting assistance from my EMS 11 lecturer

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q14	I only have confidence in getting assistance from my EMS 11 lecturer	2.25	2.00	20	0.97	0.97	0.22	0.22

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
-0.25	0.64	0.14	-0.55	0.05	-1.75	19.00	0.10

There is not a significant statistical difference in question 14 between the pre and post intervention scores with mean difference of -0.25, t(19) of -1.75 and a p-value of 0.10.

Table 6.45: If I underachieve in BMF IV, it is most likely to my ineffective preparation for assessments

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q15	If I underachieve in BMF IV, it is most likely to my ineffective preparation for assessments	2.59	2.89	37	0.80	0.97	0.13	0.16

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.30	1.05	0.17	-0.05	0.65	1.72	36	0.09

As can be seen in Table 6.45, there is no significant statistical difference in comparison 15 between the pre and post intervention scores. This reflects on mean difference of 0.30, t(36) of 1.72, noting the attempt to question 15 by 36 students. The p-value of 0.09 is slightly more than the standard p<0.05, hence not statistically different.

Table 6.46: If I underachieve in EMS 1, it is most likely to my ineffective preparation for assessments

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q15	If I underachieve in EMS 1, it is most likely to my ineffective preparation for assessments	2.65	3.30	20	1.14	0.86	0.25	0.19

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.65	1.18	0.26	0.10	1.20	2.46	19.00	0.02

Interestingly, there is a significant statistical difference in question 15 between the pre and post intervention scores showing mean difference of 0.65, t(19) of 2.46 and a p-value of 0.02 since p<0.05.

Table 6.47: Even when I try hard, I do not do well in BMF IV

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q16	Even when I try hard, I don't do well in BMF IV	1.79	1.64	39	0.98	0.90	0.16	0.15

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
-0.15	0.75	0.12	-0.40	0.09	-1.29	38	0.21

In Table 6.47, the question is compared to the responses gathered between the pre and post Jigsaw intervention, stating the mean difference of-0.15, t(38) of-1.29 and, a p-value of 0.21 which is more than 0.05. These results indicate that there is no statistically significant difference between students not doing well in Business Methodology even when they try hard and the application of Jigsaw intervention.

Table 6.48: Even when I try hard, I do not do well in EMS 11

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q16	Even when I try hard, I don't do well in EMS 11	1.90	1.90	20	1.21	0.85	0.27	0.19

Paired Differences							
			95% Confidence Interval of the Difference		t	df	P
Mean	STD	SE	Lower	Upper			
0.00	0.918	0.205	-0.429	0.429	0	19	1

There is not a significant statistical difference in question 16 between the pre and post intervention scores showing mean difference of 0 t(19) of 0 and a p-value of -1.

Table 6.49: I intend completing my studies in record time

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q17	I intend completing my studies in record time	3.64	3.59	39	0.54	0.64	0.09	0.10

Paired Differences							
			95% Confidence Interval of the Difference		T	Df	P
Mean	STD	SE	Lower	Upper			
-0.05	0.69	0.11	-0.27	0.17	-0.47	38	0.64

As indicated in Table 6.49, there is no significant statistical difference in question 17 between the pre and post intervention scores indicating mean difference of -0.05, t(38) of -0.47 and a p-value of 0.64.

Table 6.50: I intend completing my studies in record time

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q17	I intend completing my studies in record time	3.45	3.35	20	0.76	0.81	0.17	0.18

Paired Differences							
			95 Confidence Interval of the Difference		T	df	P
Mean	STD	SE	Lower	Upper			
-0.10	0.852	0.191	-0.499	0.299	-0.525	19	0.606

There is not a significant statistical difference in question 17 between the pre and post intervention scores reflecting the mean difference of -0.10, t(19) of 0.52 and a p-value of 0.61.

Table 6.51: I prefer working in a group environment to help each other to achieve our academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q18	I prefer working in a group environment to help each other to achieve our academic goals	2.21	2.64	39	0.98	0.99	0.16	0.16

Paired Differences							
			95% Confidence Interval of the Difference		t	Df	P
Mean	STD	SE	Lower	Upper			
0.43	1.07	0.17	0.09	0.78	2.54	38	0.02

From Table 6.51 above, the independent t-test conducted to establish differences between the pre, and post intervention scores indicated that there is a statistically significant difference. The table indicates the mean difference of 0.43, t(38) of 2.54. By implication of p > 0.05, p-value of 0.02. which is less than 0.05 means that there is a significant difference in the responses.

Table 6.52: I prefer working in a group environment to help each other to achieve our academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q18	I prefer working in a group environment to help each other to achieve our academic goals	3.05	3.05	19	0.85	1.13	0.19	0.26

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.00	1.155	0.265	-0.557	0.557	0	18	1

Table 6.52 conveys no significant statistical difference in question 18 between the pre and post intervention scores with mean difference of 0, t(18) of 0 and a p-value of 1. It is evident from the table above, that the pre mean and post mean were the same, which resulted to mean difference of 0.

Table 6.53: I prefer working independently to achieve academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q19	I prefer working independently to achieve academic goals	3.33	3.26	39	0.74	0.88	0.12	0.14

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
-0.07	0.96	0.15	-0.39	0.23	-0.50	38	0.62

As can be seen in Table 6.53, there is no significant statistical difference in question 19 between the pre and post intervention scores. This is shown by mean difference of -0.07, t(38) of-0.05 and the results of a p-value of 0.62 which is more than 0.05.

Table 6.54: I prefer working independently to achieve academic goals

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q19	I prefer working independently to achieve academic goals	2.65	2.95	20	1.31	1.05	0.29	0.23

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.30	1.261	0.282	-0.29	0.89	1.064	19	0.301

As reflected in Table 6.54 there is not a significant statistical difference in question 19 between pre and post intervention scores with mean difference of 0.30, t(19) of 1.06 and a p-value of 0.30.

Table 6.55: I prefer being in the same group with my friends

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q20	I prefer being in the same group with my friends	2.97	2.67	39	1.06	1.03	0.17	0.17

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
-0.30	0.69	0.11	-0.53	-0.08	-2.77	38	0.01

Table 6.55 was responded to by 38 students and resulted with p-value of 0.01. This means that there is a significant statistical difference hence the p-value is less than 0.05 in question 20 between the pre and post intervention scores, noting the mean difference of -030 and t(38) of - 2.77.

Table 6.56: I prefer being in the same group with my friends

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q20	I prefer being in the same group with my friends	2.50	2.50	20	1.15	1.19	0.26	0.27

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	df	P
			Lower	Upper			
0.00	0.562	0.126	-0.263	0.263	0	19	1

EMS 11 response to question 20 in Table 6.56 above, showed no significant statistical difference between pre and post intervention scores. This is proved from the table above with mean difference of 0, t(19) of 0 and a p-value of 1 which is greater than 0.05.

Table 6.57: I am able to work with anybody in a group task other than my friends

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q21	I am able to work with anybody in a group task other than my friends	2.56	2.74	39	1.05	1.04	0.17	0.17

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
0.18	1.07	0.17	-0.17	0.53	1.05	38	0.30

Table 6.57 shows no significant statistical difference in question 21 between pre and post intervention scores. The responses resulted with mean difference of 0.18, t(38) of 1.05 and p-value of 0.30 which is more than 0.05.

Table 6.58: I am able to work with anybody in a group task other than my friends

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre STD	Post SE
Q21	I am able to work with anybody in a group task other than my friends	2.90	2.90	20	1.02	1.02	0.23	0.23

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		t	df	P
			Lower	Upper			
0.00	0.858	0.192	-0.402	0.402	0	19	1

Surprisingly, in Table 6.58 there was no movement in both pre and post means, pre and post standard deviation (STD) and the pre and post standard error (SE) as in case of means ranges from 2.90 to 2.90. It can therefore be established that there is no significant statistical difference in question 21 between pre and post intervention scores with mean difference of 0, t(19) of 0 and a p-value of 1 which is greater than 0.05.

Table 6.59: I am not confident to ask questions in BMF IV class

		Pre Mean	Post Mean	N	Pre STD	PostS TD	Pre SE	PostS E
Q22	I am not confident to ask questions in BMF IV class	2.26	2.21	39	0.99	0.92	0.16	0.15

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
0.18	1.07	0.17	-0.17	0.53	1.05	38	0.30

There is no significant statistical difference in Table 6.59 with question 22 between pre and post intervention scores. The out-turn is the mean difference of 0.18, t(38) of 1.05 and p-value of 0.30.

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Table 6.60: I am not confident to ask questions in EMS 11 class

		Pre Mean	Post Mean	N	Pre STD	Post STD	Pre SE	Post SE
Q22	I am not confident to ask questions in EMS 11 class	2.70	2.30	20	1.08	1.13	0.24	0.25

Paired Differences							
Mean	STD	SE	95% Confidence Interval of the Difference		T	Df	P
			Lower	Upper			
-0.40	1.142	0.255	-0.935	0.135	-1.566	19	0.134

Table 6.60 indicates mean difference of -0.40, t(19) of 1.57 and, a p-value of 0.13. Since the p=0.13 > 0.05, the pre and post intervention scores in question 22 confirmed that there is no significant statistical difference.

6.3 DESCRIPTIVE QUALITATIVE ANALYSIS

Marshall and Rossman (1989 as quoted by De Vos, Strydom, Fouché & Delport, 2002) state that qualitative data analysis is a search for general statements about relationships among categories of data. In contrast with quantitative methods that examine cause and effect, Muijs (2004) posits that qualitative methods are more suited to looking at the meaning of particular events or circumstances. Patton (1990 as quoted by De Vos, Strydom, Fouché, & Delport, 2005) posits that qualitative analysis transforms data into findings. This involves reducing the volume of raw information, sifting significance from trivia, identifying significant patterns and constructing a framework for communicating the essence of what the data reveal. Leedy and Ormrod (2005) state that qualitative researchers construct interpretive narrative from their data and try to capture the complexity of the phenomenon under study. They use a more personal, literary style, and they often include the participant's own language and perspectives.

In integrating the constant comparison analysis approach into this study, the researcher integrated the research questions (apart from research question one and

three) which focuses at how the Jigsaw teaching and learning strategy enhances the teaching and learning of Business Education. The results from the focus group discussion responses of the total sampling (n=22) were recorded, transcribed, analysed, and reported. From the analysis of participant's responses, seven themes emerged and are presented in Table 6.61

Table 6.61: Themes and sub-themes emerging from focus group discussions

FOCUS GROUP INTERVIEW QUESTIONS	THEMES	SUB-THEMES
1. What are your experiences and views of Jigsaw strategy in your Business Education lessons this year? 2. How do you feel about working with others? 3. Did you learn anything new when working collaboratively? 4.What were your encounters?	1.Student's learning experiences	1.1Different perspectives and understanding 1.2Building teamwork 1.3 Establishing moral values
1. What was the role of the lecturers' lesson preparedness? 2. How was the level of lecturer and student interactions in the classroom? 3. Was the lecturer helpful? 4.Does the lecturer issue/provide enough constructive feedback?	2. Lecturer's role	2.1 Planning and preparedness 2.2Stimulating constructive interactions and collaborations 2.3 Constructive Feedback
1.How did you communicate amongst each other as a group? 2. What have you learnt about communication and code-switching during group interactions? 3. What mode of communication worked for you after the lesson?	3. Communication	3.1Code switching/change of language 3.2Freedom of expression and conveying respect 3.3Open mindedness
1. How did Jigsaw affect your class attendance? 2. How did you encourage or push one another?	4.Classroom attendance	4.1 Individualised learning 4.2Individualised and group contribution 4.3 Group mark
1. How do you feel going forward after Jigsaw experience, going to the exam? 2. How is your overall performance since you worked as a group?	5.Students' performance	5.1Student's readiness 5.2Test scores 5.3Feedback about the course
1.What was the major challenge you faced with a Jigsaw strategy in a Business Education classroom?	6.Challenges and recommendations	6.1Takes time, 6.2Other teaching methods, 6.3Sufficient learning resources.
1. What were the **benefits** brought about by the Jigsaw experience?	7.Benefits of Jigsaw	7.1Students' level of study, 7.2Ease on workload 7.3Preparedness for work industry

(Source: Mogashoa, 2022)

6.4.2   Theme 1: Student's Learning Experiences

The first question for discussion on the focus group interview guide was to reveal the experiences and views of Business Methodology student respondents about the Jigsaw cooperative learning in the classroom.

6.4.2.1 Sub-theme 1.1: Different perspectives and understanding

"People had different thoughts, but no one felt less, we as a group made sure that every member was comfortable to share their thoughts. We all have different examples/ views/ explanations regarding a topic which is enriching because it comes from diverse students so we can learn different things." (Group A Student participant)

"It is all about integrating with your colleagues as compared to going to class and listening to the lecturer, if we go to the traditional lecturing, you do things on your way." (Group B Student participant)

"We share ideas in groups, from what I know, you might believe that you know everything and on the other side you don't know very well." (Group C Student participant)

From the responses given, Business Methodology students understood that each one of them have considerable knowledge which may be correct and some not. They admit to the fact that they are diverse individuals from varied settings, which implies that cooperative working groups enlightens them through shared divergent ideas from group members.

6.4.2.2 Sub-theme 1.2: Building teamwork

"I am slow to understand things and group work, listening to different views during group work made things easier although I never thought that I will be able to work with the group, but the group made it easier for me." (Group A Student participant)

"It is all about teamwork, if we were given a task, you will do it and go back to your team and ask whether you are on the right track." (Group B Student participant)

"No one was pushed as we encouraged each other, we were punctual, and everyone did his or her part, no one was resistant. Group members were all supportive." (Group C Student participant)

The responses from three student participants indicates that they valued teamwork. Group B participant highlighted taking the responsibility to complete the task and later approaching his/her group mates for insights. Group C student participant adds that

none of them were resistant and instead, they were supportive to each member of the group.

6.4.2.3   Sub-theme 1.3: Establishing moral values

"You get diverse information, experiences and understanding of how to handle things." (Group A Student participant)

"Patience because you as an individual you needed the work to be done so you will be compelled to accommodate those who are left behind, especially if one member does not understand. Collaboration brings confidence, patience, and better relationships with my peers." (Group B Student participant)

"I am happy because we were and are responsible, accountable, committed members of the group." (Group C Student participant)

Interestingly, in the focus group interviews, both groups were of the viewpoint that they developed patience, confidence, and had a better relationship with their group members. Group C participant acknowledges that the Jigsaw experience helped them become responsible, accountable and, committed members of the group.

6.4.3   Theme 2: Lecturer's Role

6.4.3.1   Sub-theme 2.1: Lesson planning and students' preparedness

"Being there in front of the class made us committed as she gave us clear instructions. She warned us from the beginning about expectations with the content and Jigsaw method." (Group A Student participant)

"She gave us enough time to prepare, as we had the rubric well in advance, she gave the inputs on where we went wrong and right, she reflected on where we went wrong." (Group C Student participant)

"We couldn't understand the rubric and we wanted the lecturer to give us the feedback and the assumption was what we did was correct." (Group B Student participant)

From the responses given, it is understood that students value the visibility and the presence of the lecturer in the classroom and having the learning outcomes and the expectations of a subject content being explicitly explained as well as the teaching and learning approach. This was voiced by Group A student participant. On the same note,

Group C participant approves of a lecturer who gives them enough time and a rubric in advance to guide their work. However, Group B reported that some members did not understand the rubric and would have appreciated more clarity of what was expected.

6.4.3.2   Sub-theme 2.2: Stimulating constructive interactions and collaboration

"I gained different perspectives from other members, how I understood concepts is different from how each of my group members understood them." (Group A Student participant)

"I like speaking but not in front of people, but with collaboration I now can voice my opinions in front of my colleagues without even worrying of what they think about me." (Group B Student participant)

"She challenged us, she will say to us that this is what I call thorough preparation, when one of the groups presented and those words pushed us to do our work thoroughly." (Group C Student participant)

The lecturer's role in stimulating constructive interactions was reported on by the participants. Group A student participant acquired different views from other teammates whilst Group B had the confidence to share their views in front of colleagues. Group C student participant felt challenged and at the same time motivated to do even better with their research and presentations.

6.4.3.3   Sub-theme 2.3: Constructive feedback

"She engaged us, and we had to prepare thoroughly since she might ask you question. It wasn't like other classes where we do class work and assignments in absence of the lecturer because with other classes the lecturer doesn't know whether others were involved in the assignment or not." (Group A Student participant)

"We had to work together for our marks, and we feel the lecturer could have helped us more, we had to find a way to mingle with one another." (Group B Student participant)

"The lecturer gave us feedback about how we performed, where we made mistakes and gave additions. Also, the rubric was more helpful, and the rubric was able to guide us because we knew what was expected in time." (Group C Student participant)

Students' response about feedback varied amongst the three groups although responses from Group A and B were not really about feedback but related to the process of the Jigsaw approach and the role of the lecturer. Generally, both Group A and B student participants realised the lecturer's role in motivating student engagement and observing feedback from individual students. It can be established that student participants were aware that for an effective learning experience to occur, both the lecturer and the students should take part. Group C student participants recognised the value of the feedback from the lecturer and that the rubric used made it easier to understand how the grading was done and what was expected of them.

6.4.4   Theme 3: Communication Approach

6.4.4.1   Sub-theme 3.1: Code switching/ change of language

"We knew we had to present in English, it wasn't about being allowed, we use our native (mother tongue) in our social group but when we move to other groups or either giving feedback to class, we use English. We knew that when we give feedback, we had to present in a language that everyone understands (as we have Zulus, Xhosas, Afrikaans). Remember we are not fluent in English, and our lecturer never had problems when we discuss in our languages." (Group A Student participant)

"We understand more when the concepts explained by our fellows than it is explained by the lecturer because some of us are afraid to ask our lecturers but with our peers, we can ask more, ask what you meant by saying and that and, even make a follow up or even ask later or chat on social media until we understand much better." (Group B Student participant)

"Honestly, No! We speak different languages so for us to accommodate our group members we had to speak in English so that they can hear us and understand." (Group C Student participant)

A number of aspects emerged from the responses. Some students felt comfortable with code switching to their various home languages in their respective groups. This helped them with the discussion and then the students reverted to English when they gave feedback to the whole class group. This exception was Group C, who chose to stick to English to accommodate all the group members as many came from various

language groups. What did emerge was the fact that student interaction was vital in developing a better understanding of the subject content.

6.4.4.2   Sub-theme 3.2: Freedom of expression and conveying respect

"I learnt that communication is important in a group and we need to respect others." (Group A Student participant)

*Respecting each other's opinions, communication that we should disrupt others when they are voicing their opinions, we should give them a chance as we have to agree at the end of discussion, we give explanations in our understanding as compared to the how they explained in the group." (*Group B Student participant)

"*We understand more when the concepts are explained by our fellows than it is explained by the lecturer because some of us are afraid to ask our lecturers but with our peers, we can ask more, ask what you meant by saying and that and, even make a follow up or even ask later or chat on social media until we understand much better."* (Group C Student participant)

Surprisingly, student participants in pointed out that they showed respect to each other, respected each other's opinions and were thus able to communicate effectively. In so doing, every member of the group understood, and they were able to reach a conclusion as a group and produce constructive results. Group C student participants spoke of liberty or freedom to ask repeatedly until a task is understood by all team members and at most, taken further for discussion on social media.

6.4.4.3   Sub-theme 3.3: Open mindedness

We all have different examples, views, explanations regarding a topic which is enriching because it comes from diverse students so we can learn different things." (Group A Student participant)

*We created a social network, WhatsApp. On Mondays every week, we met before sessions and discuss our work and help each other on different aspects. We asked members to check on Fridays and allocate each other a part." (*Group B Student participant)

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From the responses, it seems that students were eager to embrace different views and explanations offered by fellow members. They accepted that they are diverse individuals with different views and experiences. They saw the learning process enriching as they had created "WhatsApp" groups to discuss work and assist members who need help. In particular, this reaction by the groups would be to make sure that all members are ready to give feedback for the success of the group.

6.4.5   Theme 4: Classroom Attendance

6.4.5.1   Sub-theme 4.1: Individualised learning and group contribution.

"Class attendance during our first session was low but since we as students became aware that we are going to be graded in every session, we made sure we attend." (Group A Student participant)

"We created a social network, WhatsApp. On Mondays every week, we met before sessions and discuss our work and helped each other on different aspects." (Group B Student participant)

Some of us hardly attended classes, now that we knew that we had to present and everyone has a responsibility, we had to attend every week. Annoying thing was that the class was on Monday mornings and we had to come due to circumstances." (Group C Student participant)

Relating to group's responses on classroom attendance, students made sure that they attend Business Methodology class. Students admitted to initially skipping classes as the session was scheduled weekly on Monday mornings. Being aware that they were going to be graded in every session, change their view as they had a responsibility to be present, as non-attendance would have impeded group success.

6.4.5.2   Sub-theme 4.2: Motivation and commitment

"It was encouraging for us to wake up on Monday mornings, we knew that if you miss that class, you will lose a lot of information and the marks. We knew that we were going to learn a lot from peers." (Group A Student participant)

"My group members were committed as each, and every individual had to do his/her part and work on combined ideas. I wish to work with my peers even in future, I want

to be with them since we worked well and, they were committed." (Group B Student participant)

"The set up made sure that we had to attend". (Group C Student participant)

According to participant responses, students were encouraged not to miss Business Methodology classes as they were aware that it was vital for learning and non-attendance would mean forfeiting marks. Group C student participant declared that the way the Jigsaw approach was run, ensured that they attended. Group B student participant reported on the commitment of the groups and working together to play their particular role. It sees that this commitment of collaboration and teamwork has motivated and prepared the participants to work with peers in the future (workplace).

6.4.5.3   Sub-theme 4.3: Overall group mark/outcome

"Since we heard again that we as group members are going to grade each other, we saw it compulsory to be in every class and everyone was there and when we had to grade each member according to the participation and we were compelled to be present in every class." (Group A Student participant)

"The pressure comes if one of the members is absent, because then it means we had to cover their part for the success of the group. We had to discuss amongst ourselves as to who will take the part. And we also took it up with the lecturer to be lenient but at most we made sure that we are all present." (Group B Student participant)

"We had to be there because we knew that failing which we will forfeit our marks." (Group C Student participant)

According to the responses on classroom attendance, Group A participant felt compelled to attend every Business Methodology class due to grading. Group C adds that, they had to be in every class to avoid failing or forfeiting marks. Group B participant highlighted the concern of a member being absent in class and felt that they had to cover that role to avoid failing.

6.4.6 Theme 5: Students' Performance

6.4.6.1 Sub-theme 5.1: Student readiness

"It improves the understanding of the module: we have a concept that is explained in many ways, you get different views, when you get to the exam room you remember very well, when we study, we read and pass as a way of revision." (Group A Student participant)

"It will be easy to remember going forward especially in the exam room, even with the textbook from now onwards we will be revising and not studying like before because some of the things we still remember them from the class." (Group B Student participant)

"And from now, we are ready for the exam, because we have learned a lot of things from the lecturer and from the groups and our group members." (Group C Student participant)

Student performance after the Jigsaw learning experience is one of the major themes in this study. Through discussions and interaction in groups, students reported a better understanding of the subject content. It seems that this laid a foundation for the preparation of the examination, helped with revision as students remembered what they had learned in the classroom.

6.4.6.2 Sub-theme 6.2: Test scores

"It affected our performance positively." (Group B Student participant)

"I suppose that if we could have studied individually, we would have not obtained better marks, so this method helped us have boosted our marks. I don't think any of us will fail." (Group C Student participant)

The student's responses acknowledge the fact that Jigsaw learning affected their test scores positively. Student participant from Group C declared that studying alone without the support and interaction with peers would not have resulted in such a good performance. The respondent was convinced that all group members would pass the

subject as the learning approach had developed their understanding and prepared them for the exam.

6.4.6.3   Sub-theme 6.3: Feedback about the course

Yes, it was nice, there was commitment amongst the group members, and we made sure we came prepared, we became close to peers whom we never had a relationship since first year." (Group A Student participant)

Self-confidence, I couldn't speak in front of colleagues, and which will help in my career." (Group B Student participant)

"At first, I was not in favour of group work or the Jigsaw strategy, but I have seen that it is very effective, and it is very useful, now I understand the module more when my group members and my classmates explain." (Group C Student participant)

From the above responses, not only did the Jigsaw approach improve student confidence and communication skills but it had a positive effect on their relationships and commitment to succeed in Business Methodology. Most importantly, students who did not view group work favourably, were not only complimentary about its success in achieving learning outcomes but in developing collaborative skills through the cooperative work Jigsaw approach.

6.4.7   Theme 7: Challenges and Recommendations

6.4.7.1   Sub-theme 7.1: Takes time.

"When we used the method, the time was not enough, we needed more time to inform our groups and the rest of the class on what we learned." (Group B Student participant)

"Yes, working in groups can be tiring and time consuming, as sometimes I do not want it at all because there are people involved and you are stressed whether or not they are doing their part. When others don't do their part then it affects my performance, that what I don't like about groups as compared to when I work alone, I don't blame anyone but myself." (Group C Student participant)

Students reported that group work such as the Jigsaw approach took time. It is evident from the responses above, that the 80-minute class sessions were inadequate for both presentations and grading. Group B student participant expressed the need for more

time to share the information with other groups. Group C student participant mentioned the anxiety and stress as to whether other team members are committed to their sections. This seems to indicate that some students prefer to work alone to save time and be accountable of their performance.

6.4.7.2 Sub-theme 7.2: Incorporate other teaching methods.

"*This method will be effective if there is a mix of methods because if it continues forever, it becomes boring. Group work shouldn't be all the way used because I feel other groups were doing it for the way of doing it and that is for marks.*" (Group A Student participant)

"*I don't like it, I want to work by myself, it's a personality thing (mood swings), if I work on something I tell myself (set a goal) that I am going to finish it, I just don't want to be forced to work with other people and compel them to do things, getting together it's a no! I fight.*" (Group B Student participant)

I won't use it every time because some students rely on others, while others tend to work, others become reluctant, it is not effective all the time especially looking at the personality of students, it should be changed all the time." (Group C Student participant)

The responses reveal mix feelings about Jigsaw learning, particularly if is implemented for the whole semester. Group A student participant is of view that constant use of this approach leads to students becoming bored. Group C student participant believes that regardless of the Jigsaw principles, there are those team members who resent the approach because of their personality traits and there are those who rely on others to do the work.

6.4.7.3 Sub-theme 7.3: Sufficient learning resources

"*Students need resources (books) for discussions. Some students didn't have books.*" *(Group B Student Participant)*

Emanating from challenges experienced during group work, Group B student participant's concern was inconvenience and time wasted because of limited resources (textbooks) in a group. It seems that students expect to be given the required resources to facilitate the group work.

6.4.8   Theme 8: Benefits of Jigsaw Learning

6.4.8.1   Sub-theme 8.1: Students' level of study

"This can be an effective way for assessing third and fourth years. During our first year of study, we are excited but second year and forth the work increases so this strategy will be good for us. During our fourth year as we are at the exit point, we feel we do not have to attend, one feels that you have to go to class." (Group A Student participant)

"Us as students we bunk classes from our second year of study so Jigsaw method will work as we have to attend." (Group B Student participant)

Group A student participant identified benefits brought about by Jigsaw learning but recommended that the lecturer introduce the learning method in third- and fourth-year modules to help cope with the volume of work.

6.4.8.2   Sub-theme 8.2: Ease on workload

"It developed to more than just a group, our relationships grew as compared to us being distant in the previous years in class in groups. We had better interest on each other and that of the success of our group that we had to remind each other in the evenings to get prepared for the next lesson." (Group A Student participant)

"Everyone had to come up with something, say something, come up with something, we expected every one of us to do research and give us the feedback." (Group C Student participant)

The student participant's responses above indicate that the development of relationships helped with student interaction and collaboration. Team members were responsible for allocated tasks and accountable to the group. They each expressed interest in members of the group and their success in tasks, reminding each other to prepare work for the next lesson. The response of Group C student participant noted that each member was expected to work on the allocated section/tasks, do research and provide feedback to the group. This meant ease of workload for every member since they are not responsible for all sections.

6.4.8.3 Sub-theme 8.3: Preparedness for work industry

"It boosted our confidence to present in front of our lecturers especially that we are being trained to be teachers. During micro lessons or practice teaching it becomes challenging for us to present in front of our lecturers, but this adds more practice as pre-service students." (Group A Student participant)

"It was a lesson that in future when we are in the field that it is good and comes with benefits to mingle with colleagues." (Group C Student participant)

The Jigsaw cooperative learning approach boosts student confidence developing their skill of presenting in front of the class and sharing the findings of their tasks/subject matter as in micro lessons and practice teaching. Group A student participant revealed that the Jigsaw learning experience provided them with more practice as pre-service teachers. Group C student participant professed to have learned to mingle with peers.

6.4.8.4 Sub-theme 8.4: Other Benefits

"Working together until the end which means you are in it till the end and have the end product. We had the same groups from the beginning until the end which made us comfortable, whereas in other groups you had them for assignment. With Jigsaw, every member had to participate than only one member responsible to give feedback." (Group A Student participant)

"*It is a good way to interact with students, to collaborate with one another, we expand our knowledge in different ways, if I don't understand a certain concept/or my part, my peer will explain it to me than the way a lecturer could* have *explained it. In essence, for me, it is a great way for students to understand a content that a lecturer wants them to understand, socially as we get to know one another."* (Group B Student participant)

"Sharing ideas and working with each other." (Group C Student participant)

From the responses of the student participants, it seems that they acknowledged the value of working together as team members throughout the semester as this allowed for the development of trust in each other, learning from each other and having someone else explain difficult concepts. In essence, both group A, B and C student participants consider group work in the Jigsaw method as an effective way to interact, share ideas, learn from each other and collaborate towards a common goal.

6.5 CONCLUSION

This chapter presented the analysis of the data from the empirical research. Firstly, the general information of the participants was discussed, thereafter, the difference in the performance of Business Education students with a pre-test and a post-test. To understand the value of the Jigsaw intervention, results from the questionnaire as a quantitative mode of data collection, was presented. The findings from the qualitative mode of data collection assisted in establishing student perceptions of the value of the Jigsaw teaching and learning strategy in enhancing the teaching and learning of Business Education.

In the next chapter, findings derived from both the quantitative and qualitative components of the study are presented with a reflection on possible recommendations related to the research questions.

CHAPTER 7

FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

7.1   INTRODUCTION

The aim of this study was to investigate how Jigsaw as a teaching and learning strategy enhances the teaching and learning of Business Education. This study was undertaken by means of a literature study, as well as empirical research. On that account, certain findings can be presented and recommendations made in light of the literature perspective, personal experience relating to cooperative learning and the Jigsaw teaching and learning strategy and the empirical study.

In this chapter, a summary of the research is firstly given. Secondly, findings are discussed with regard to the research questions as presented in Chapter 1 by referring to the literature review reflected in Chapters 2, 3 and 4 and also in relation with the empirical research reported in Chapters 5 and 6. Limitations of the study, mainly with regard to Business Education and the Jigsaw approach are also outlined. Finally, recommendations are offered and areas for further research are outlined.

7.2   SUMMARY OF CHAPTERS

Chapter 1 introduced the study. The chapter provided the introduction to the study, the problem statement, aims and objectives of the study and the research questions. A brief outline of the research methodology and design were given, the research validity and reliability as well as the ethical considerations.

Chapter 2 delved into various theories that foreground this study, the benefits and the challenges of a constructivist classroom, motivational theories and the teaching and learning methods.

Chapter 3 Chapter 3 reviewed the literature on cooperative learning as a learner-centred approach, providing the nature and the purpose of cooperative learning. This was followed by the principles of cooperative learning, types of cooperative learning, benefits of cooperative learning approach, the role of the lecturer and that of students

in cooperative classroom as well as the pitfalls of cooperative learning were discussed in full.

The focus in **Chapter 4** was on Jigsaw as a teaching and learning strategy. An outline on the origins of Jigsaw cooperative was given, the Jigsaw model, considerations before the Jigsaw strategy and a discussion on the Jigsaw model. The chapter also provided a description of the lecturer's roles and responsibilities in a Jigsaw classroom, the principles and the qualities of a Jigsaw teaching and learning approach including the benefits and challenges that may be encountered in a Jigsaw classroom.

Chapter 5 provided an overview of the research methodology and design comprising a mixed methods approach of QUAN + QUAL. The pragmatic paradigm was deemed appropriate for the research which followed a sequential mixed methods approach. The intervention with its pre- and post-test was discussed as well as the questionnaire and focus group discussions used to collect data from the sampled participants. Data analysis for both quantitative and qualitative data was discussed as well as trustworthiness of the research and ethical considerations.

In **Chapter 6,** quantitative data collected through the questionnaire based on a four-point Likert scale were analysed and ranked according to frequencies and percentages of items. In the qualitative mode, data collected through focus group interviews was presented. Findings emerging related to aspects such as student's views and learning experiences of Jigsaw learning approach, lecturer's role in a Jigsaw classroom, communication approach, student's performance after the Jigsaw

In **Chapter 8**, the information gathered from the empirical study and supported by literature, were used to develop a model that could be used by lecturers in Business Education for the implementation of Jigsaw as a cooperative learning strategy in universities.

The next section presents the findings of the empirical study and are organised according to each research question.

7.3   DISCUSSION OF FINDINGS

To answer the main research question: *What features/components can be identified to design a modified Jigsaw cooperative learning strategy to enhance academic*

performance of Business Education students at a university of technology? the findings are presented according to each of the research questions.

7.3.1 RQ1: How does Jigsaw as a teaching and learning strategy enhance the teaching and learning of Business Education?

7.3.1.1 *Jigsaw and academic achievement*

As reported in Chapter 6, the achievement of participants who experienced the Jigsaw intervention in Business Education (EMS 11 and BMF IV) obtained higher marks in Test 2 as compared to Test 1. In addition, students were successful in passing the end-of-year examinations. EMS 11 class group examination marks (M=63.17) were statistically significantly higher than the progress mark (M=50.54), t(34) = -4.533, p<0.001, d= -0.766 as compared to the BMF IV examination marks (M=50.73), which were statistically significantly lower than the progress mark (M=77.10), t(39) = 9.582, p<0.001, d= 1.515.

The findings tend to indicate that the Jigsaw teaching and learning approach has a positive effective on Business Education student achievement and influences student retention. This aligns with Purwanty *et al.* (2020) who emphasises that the application of the Jigsaw strategy can create success among students as they work in groups interacting with their peers and being facilitated by their lecturer. In line with the constructivist theory, students worked in conducive learning environments that provoked fruitful engagements for effective teaching and learning of Business Education. Students were free to explore concepts through discussion and to construct their own understanding of the content. Classroom sessions that are guided by the principles encourages students to reflect, evaluate their progress and identify areas of lack that need assistance from either peers or the lecturer.

A constructivist approach acknowledges that there are different solutions to a problem and that many of students' points of view are reasonable and justifiable. Knowledge is constructed by students as they work collaboratively as teams to reconcile new information with past experiences (*cf.* Chapter 2, Section 2.3). A Jigsaw classroom that embraces a constructivist approach, promotes students' agency to succeed, as they become actively involved in their own learning whilst having the courage to table their diverse views to their team members and even extend these to the class group.

Not only does the cooperative context enhance academic achievement but it develops problem-solving, critical thinking and communication skills as well as interpersonal skills, vital for success at higher education level (Adeymi, 2008) (*cf.* Chapter 3, Section 3.9.7).

7.3.1.2   *Jigsaw and academic interest*

Students are known to encounter difficulties on the subject matter and often find concepts difficult to understand, which tend to have an influence on academic interest and their achievement. Nduji *et al.* (2020) emphasised that students' poor performance could be attributed to lack of interest. Aronson *et al.* (1978) credited for introducing the Jigsaw approach (*cf.* Chapter 4, Section 4.8.2), suggested that the formation of groups consisting of heterogeneous students and the shift from competition amongst students to a more cooperative one, could form the basis for effective teaching and learning.

The findings reveal that high performing students were sceptical of the Jigsaw approach at the beginning of the semester and were worried about marks and their pre-determined goals at the start of the intervention. Participants admitted having experienced enriched discussions during collaborative work as team members had opportunities to express their opinions and at the same time, acquire extensive knowledge on the subject matter. The Jigsaw strategy proved that no individual student is a master of all areas of work and that each student whether a low performer or not, can benefit from cooperative learning, regardless of individual ability. In addition, student interest in the subject matter was increased, as was observed in student realisation of their significance to the group. They were determined not to miss class, presentations or after class meetings as their absence caused confusion, panic, and discouragement. All such aspects assisted in increased understanding and development of knowledge and thus academic interest.

7.31.3   *Jigsaw and academic responsibility*

Responsibility, as defined by Bursa and Kose (2020), is the ability of a student to adapt, fulfil the academic duties, respect other team members and assume the consequences of the effects of his action on others. On the other hand, Daniels, Radil and Goegan (2020) conceptualise student responsibility as a sense of internal

obligation and commitment to produce the designated learning outcomes. Students' responsibility in the teaching and learning process of a subject such as Business Education, has an impact on their engagement during lessons. A lecturer who engages with responsible Business Education students aims at quality engagement, is motivated, self-regulated, proactive, concerned about student learning and sensitive to the consequences of their actions. Lecturers are committed to their academic work thereby preparing learning tasks that relate to the learning objectives of a particular unit. Assessment criteria such as the development of a rubric with a description of points and the due date for completion should be given to students as a guide prior to the commencement of the task. According to van Wyk (2015), the intention of the Jigsaw approach is to enhance listening, engagement and empathy skills of all students. Hence, the lecturer prepares and arranges classroom activities thereby enabling students to help their peers and maintain positive relationships to accomplish their desired goals (*cf.* Chapter 3, Section 3.8.6).

As indicated in Table 6.21, there is a significant statistical difference in question 3 between the pre- and post-intervention scores. It can be identified that there is a mean difference of 0.30, $t(39) = 2.31$, p-value of 0.03 which is above 0.05. This implies that students took responsibility for their academic failures because of the application of the Jigsaw intervention.

While students collaborate with each other, each member has an individual responsibility towards their own work and at the same time to ensure that other group members have understood the learning task. This creates an atmosphere of active engagement because all the group members have responsibilities which require them to engage and participate (*cf*. Chapter 3, Section 3.9.2). Students were informed about the principles of Jigsaw learning during the introductory sessions which relate to the roles that they play in a Jigsaw classroom which include active participation and learning rather than being passive. Group processing sessions were conducted where groups had to engage in reflective dialogue regarding their learning encounters about the topic and discussing how they were performing as a collective. More often, students were allocated break-away sessions to assess themselves and others to better their cooperation in the subsequent sessions. The relates to Purwanty *et al.*,

(2020:468) who states that groups need to discuss cooperative and non-cooperative member behaviour and students' responsibility for each of the set tasks and make decisions about which behaviours should be changed or maintained.

7.3.1.4 *Jigsaw and motivation to achieve (overcoming and mastering challenges)*

Since Jigsaw cooperative learning revolves around the apportionment of learning tasks to all the members of the group not only does it improve student interaction but it also motivates the students to participate in the learning activities, thus enhancing the cooperative learning effects (*cf.* Chapter 4, Section 4.8.5). The Jigsaw classroom was developed as a structured method of interdependent learning that could establish the necessary conditions for increasing motivation, self-esteem, collaboration and academic performance, (*cf.* Chapter 4, Section 4.4.4). It is not an easy task to motivate students who had planned to pursue other courses and not teacher education. In addition, it is a challenge to motivate students who are demotivated by different socio-cultural factors which impact negatively on their studies. Hence, the Business Education lecturer introduced Jigsaw approach to help students to overcome and master the challenges they may encounter in learning the subject.

A significant statistical difference was noted in question 8 between the pre- and post-intervention scores. EMS 11 conveys a mean difference of 0.25, $t(19)$ of 2.25 and p-value of 0.02 which is less than 0.05, hence the significant difference. In this way, 57% (20) respondents of EMS I class group who answered question 8 of the questionnaire agreed that the Jigsaw technique helped in overcoming and mastering the challenges encountered in Business Education. Question 8 related directly to individual accountability where students aspire to be individually responsible towards the work to attain the learning objectives.

Participants declared to have been motivated to prepare for the lessons, actively participate, assist other group members and provide feedback to the best of their ability to achieve learning objectives. The positive correlation with the responses from both the questionnaire and focus group discussions show that learning motivation can foster enthusiasm in learning so that students are prepared and encouraged to participate in learning activities. The application of Jigsaw cooperative learning in

Business Education classrooms is aimed at developing student's mastery of the subject matter. Jigsaw grouping urges students to break the learning content into manageable learning components, and then integrate these separately prior to developing a meaningful whole. Each student should first master their small part of learning tasks and then teach other students about their part of the learning material (*cf.* Chapter 4, Section 4.7.5). Compiling of meaningful work and sharing of ideas with the team members and the class group can be achieved when students are motivated to do so. Participants strongly agreed that their sense of obligation to master the learning tasks and then teach to their peers, improved concurrently with their level of confidence.

Jigsaw learning is focused on motivating students to take an active role in interacting with other students in groups (*cf.* Chapter 4, Section 4.4). The classroom experience has proved that participants are motivated to learn as students' self-esteem increases significantly. It is also important to highlight that the application of the Jigsaw strategy can create success among students as they do not rely on lecturers as the sole source of information but they create new knowledge and understanding through interaction with their peers and the use of educational materials. As such, the lecturer acts as a facilitator and a motivator in students' learning (*cf.* Chapter 4, Section 4.8.1).

Motivational perspectives on cooperative learning focus on three elements: goal structures, reward structures and group dynamics. Goal structures establish a standing whereupon the individual members will succeed solely if the group has achieved its desired goals. For this reason, team members make every effort to foster and support each member's understanding of the allocated task. The reward structure is mostly associated to group rewards, which implies that the performance of the group is determined by the totality of each individual achievement or the aggregate of the group (*cf.* Chapter 3, Section 3.9.6).

Participants stated that they supported one another both in class and in study groups to attain group goals and get the rewards. To them rewards meant completing their work within the time allocated, feedback and good marks. However, the most fulfilling reward was to see every team member mastering the subject matter. This aligns with Crandall (1999 as quoted in Yassin *et al.,* 2018), that the realisation of progress in

groups is a form of a reward considered as extrinsic motivation for the students to do their best. Intrinsic motivation becomes elevated when cooperative learning is goal-oriented or focused on problem-solving activities (*cf.* Chapter 3, Section 3.9.6).

Jigsaw learning makes the atmosphere of learning enjoyable, thereby motivating students to participate and work hard towards their learning (Silalahi & Hutauruk, 2020). To enhance motivation, Yadin (2015) acknowledges that marks on progress should be made accessible to students so that they compare their performance to the class average. The motive is for students with lower-than-average grades to be motivated and dedicated to achieving more in their next task (*cf.* Chapter 3, Section 3.9.6).

7.3.1.5   *Jigsaw and student commitment*

Students' academic interest refers to the feeling of curiosity or concern about their learning that draws all their attention and commitment to their studies. In a similar context, motivation of students is related to interest in their academic work and on the level of difficulty of the allocated tasks. Thus, the high-achieving students are more likely to enjoy working together provided the learning tasks are challenging (*cf.* Chapter 4, Section 4.8.2). However, low-performing students may be challenged when faced with more difficult tasks and not be as committed.

The results reveal that 84% (38) respondents indicated to commit more when a given task is challenging with a mean difference of 0.29, t(37) of 2.32 and a p-value of 0.03. The first element of Jigsaw learning is *positive interdependence* (PI) which holds the idea that group members need to participate to complete the allocated task. The commitment and participation of each team member leads to the achievement of goals. In addition, the success of the group is the responsibility of each group member thereby being connected and dependent on each other positively (*cf.* Chapter 3, Section 3.9.3), no matter whether high-achieving of low-performing. Participants reported commitment through productive discussions in class, with 100% class attendance and enriching study group sessions outside the classroom, completing learning tasks within the time frame, early revisions and improved academic achievement. Other participants reported on the development of aspects such as respect for each member and the development of better relationships amongst

themselves as a group. In addition, commitment by the lecturer to academic work, growth mindset and lifelong learning not only produces good results but drives Business Education students to become more dedicated to their academic work. Notably, the lecturer's commitment contributes to student achievement whilst students aim to accomplish the learning objectives of a particular module.

David *et al.* (1995 cited by Ramzan & Akhtar, 2016:55) ascertain that cooperative learning methods, particularly Jigsaw cooperative learning, suits both the gifted and non-gifted students considering the fact that the lecturer devotes full attention to the students (*cf.* Chapter 4, Section 4.8.4). The consistently high performing participants proposed that the Jigsaw approach be included with teaching methods to maintain motivation, interest and commitment in studying the subject.

7.3.1.6   *Jigsaw and student confidence*

Within Jigsaw learning, the role of the lecturer undergoes a change and although the lecturer plans the learning tasks, divides the students into smaller groups and facilitates them throughout the lesson, one of the aims is to develop confidence in their learning and taking responsibility for it.

The response to question 14 of the questionnaire, revealed that 39 out of 40 students responded and the results showed the pre- and post-intervention scores with mean difference of 0.41, t(38) of 2.82 and p-value 0.01. This conveys that the respondents have confidence in getting assistance from the Business Education lecturer, with p-value of 0.01 which is less than the standard p-value of 0.05 which signifies a significant statistical difference.

According to Janah and Subroto (2019), Jigsaw cooperative learning is one of the teaching strategies designed to educate students to jointly work together and interact within a group (*cf.* Chapter 4, Section 4.4). Cohen (1994) pinpoints that lecturers have special responsibilities in a classroom where Jigsaw is dominant. The Jigsaw lecturers usually make pre-instructional decisions about grouping students and assigning appropriate tasks. Lecturers do all the necessary preparation as dividing the topic into appropriate chunks and designing the learning activities for each chunk. They monitor students and intervene when necessary, facilitating class reflection or summary.

Lecturers are also responsible for evaluating students' learning and the effectiveness of each group's work (*cf.* Chapter 4, Section 4.5). The lecturer-student joint discussion that occurs in a classroom refers to the exchange and discussion between the lecturer and students, by means of guiding the students to have a deeper understanding on knowledge of the subject matter (*cf.* Chapter 3, Section 3.10).

On the other hand, students are expected to practise and reflect on what they have learned and consult with their peers first when in need of assistance, rather than the lecturer. They are also advised to share ideas and information and at the same time, be accountable towards accomplishment of group goals (*cf.* Chapter 3, Section 3.7.1). Team members contribute effectively to the group when they have belief in their own ability, skills and experience. Thereafter, having the courage to ask questions, share their ideas and argue their conclusions without fear of being judged assists in developing student confidence and remaining motivated and not accepting failure.

The introductory sessions and the group processing session were aimed at instilling positive thinking towards the Jigsaw approach and their abilities, providing practice and knowledge and allocating learning tasks that pushed for effective dialogue amongst students not forgetting problem solving, to improve their confidence levels. The students involved in this study made mention of the lecturer explaining the process of Jigsaw learning to them and providing guidance in terms of their behaviour. Thus, in instances where participants needed assistance, they found it easier to approach the lecturer and ask for help developing confidence in getting assistance and confidence in their learning.

7.3.1.7 *Jigsaw and student accountability*

To cultivate accountability of each member, the lecturer communicated the rules that were acceptable and not acceptable in the classroom. The rules were made known to students during the introductory sessions to create a culture of trust and responsibility amongst team members as in the Jigsaw classroom, standards and expectations need to be made clear to every student.

The pre- and post-intervention scores for question 15, indicate that there is a significant statistical difference with a mean difference of 0.65, t(19) of 2.46 and a p-

value of 0.02. This implies that EMS 11 respondents agreed that ineffective preparation resulted in underachievement. However, the Jigsaw intervention motivated participants to take responsibility for their learning which also meant preparation prior to classroom sessions. With *individual responsibility*, each group member is held individually accountable to do their share of the work in relation with the learning objectives for the group to succeed. The shift of leadership amongst team members is needed to manage each individual student and ensure accountability (*cf.* Chapter 3, Section 3.6.2). To create an environment conducive to learning, students are motivated to take ownership of their own learning whilst the lecturer is supportive thereby requiring students to evaluate their work, reflect on their own performance and development of cooperative learning skills.

7.3.1.8   *Jigsaw and academic support*

Jigsaw cooperative learning not only focuses on social goals but also at improving student performance in the classroom. Haryono (1995) argues that cooperative work benefits students who work together to complete academic tasks, both the underperforming and high performing students (*cf.* Chapter 3, Section 3.4.1). Active participation in discussion, involvement, encouragement and supporting each other are all crucial for cooperative learning to be effective (Johnson & Johnson, 1999) (*cf.* Chapter 3, Section 3.6.3). A total of 95% (38) respondents answered question 18 where the students' preference of working in a group environment to help each other to achieve our academic goals was queried. The pre- and post-intervention scores indicated that there is a statistically significant difference, denoting the mean difference of 0.43, t(38) of 2.54. By implication of p > 0.05, the p-value of 0.02 which is less than 0.05 means that there is a significant difference before and after the intervention.

Jigsaw cooperative learning requires students to help each other in building and understanding the allocated work and it provides many opportunities for students to express their opinions and process the acquired knowledge. The Jigsaw experience relies on inter-group exchanges with each member teaching the allocated task which, when combined with the work of others, will form unified knowledge (*cf.* Chapter 4, Section 4.4). With traditional method of teaching, slow and average students, progress sluggishly as compared to more adept students and can be hesitant to ask for

assistance where they find difficulty. Using the Jigsaw approach accommodates diversity because the achievement of each member means the whole group has supported each other and as a group they have succeeded.

Students are granted an opportunity to learn and understand the subject matter from their peers where the act of teaching itself becomes a learning experience. For such encounters, in the intervention, peer teaching was encouraged, with each student in every group allocated a subtopic or a learning task depending on the topic of the day. This practice supported hesitant and reserved students and helped them overcome their fears through building rapport with each other and simultaneously improving their communication skills and developing confidence (*cf.* Chapter 4, Section 4.8.4).

When students work in groups, they learn to teach and listen to others. They realise that none of them can fulfil the task without the help of other group members. The only way for a student to learn the other parts of the content that are not under his/her responsibility, is to carefully listen to peers. Such practices encourage students to support and care about the work of others. Furthermore, each student becomes aware of the competence and the contribution they bring to the group. Jigsaw cooperative learning results in learning being enjoyable, a different approach, which boosts the level of confidence and even the topics that are less interesting become more interesting (*cf.* Chapter 4, Section 4.6.4). This aligns with Hashimoto, (2020) who recommends that students need to be socially conscious of one another, need to ask for clarity where necessary, listen attentively, speak properly, ask for assistance, make suggestions, check understanding, keep the group on task, ask about feelings, disagree politely, and give reasons (*cf.* Chapter 3, Section 3.6.4), all of which support all students in achieving the learning outcomes.

Cooperative learning is the pedagogy within which students become active constructors of knowledge in the learning process instead of passive receivers of any given knowledge (Van Dat, 2016). However, the support within the group increases motivation and aspects such as shyness and insecurities (Crandall, 1999; Dörnyei, 1997).

7.3.1.9 *Jigsaw and social relationships*

Almuslimi (2016) and Yassin *et al.* (2018) confirm that socially isolated students improve social skills with other students when split carefully into groups (*cf.* Chapter 3, Section 3.7.3).

Responses to question 20 in the questionnaire indicate that 38 out of 40 (95%) respondents prefer being in the same group with their friends after being exposed to the Jigsaw intervention. The pre- and post-intervention scores noted the mean difference of -030 and t(38) of - 2.77 and the p-value of 0.01 which is less than 0.05. Accordingly, the respondents chose to be in a learning environment where there is a sense of belonging, cooperation is valued over competition and the feel of a supportive relationship to accomplish group objectives. It is noteworthy that participants in the focus groups sessions cherished cooperative groups where students they felt at ease to express themselves during discussions without being judged by their peers. The experience to belong and the desire to contribute to the well-being of the whole group, not just focusing on self, empowers Business Education students to learn to be more tolerant, understanding, and accepting of others and their differences (*cf.* Chapter 4, Section 4.8.7).

By the same token, peer connectedness and increased social interactions foster new relationships. Students may be more willing to help each other and high achieving students may engage in tutoring relationships with underperforming students. Study groups may be formed, and students will be open to sharing their knowledge as well as learning resources. Accordingly, students have high self-esteem when in cooperative situations and improve their social or relationship skills (Chapter 4, Section 4.8.7). Interestingly, some respondents reported that they have started building relationships and friendships outside the classroom and have trust because of Jigsaw experience, after years of being in the same class without knowing the other students.

The findings concur with Cloud (2014) who emphasised that individual work has its worthwhile benefits, but it cannot surpass the advantages of Jigsaw cooperative learning especially when it comes to social interaction. Social interaction between

members of a given group helps overcome uncertainties and nervousness and insecurity.

Nevertheless, diversity can bring social problems and conflict in the classroom and Vakilifard *et al.* (2020) is of opinion that social skills should be explicitly taught to students. These skills include, appreciation of a member's participation, invitation of others to participate and keeping a composed atmosphere of interactions (*cf.* Chapter 3, Section 3.9.1). Improved relationships in the classroom ensures that team members are included in learning. When lecturers actively include all students through identifying individual strengths and giving them roles in groups, it recognises diversity as a learning resource and changes the conditions that influence students' participation in the classroom. This equity is fundamental to a cooperative learning classroom (Ferguson-Patrick, 2020) (*cf.* Chapter 3, Section 3.9.4).

In essence, Jigsaw learning in a Business Education class can be used to increase students' cooperative tendencies to develop proficient social behaviours. Group interactions help to instil positive relationships which occur when students help each other and enhance their thinking. A cooperative classroom can develop appreciation of the skills of others and as they are positively connected in their learning tasks, they become more tolerant of students they may have otherwise have not appreciated. Empathy and the ability to trust other team members is cultivated and enriched in such classrooms (*cf.* Chapter 3, Section 3.9.4)

7.3.2 RQ2: Which principles of Jigsaw are prone to improve the teaching and learning of Business Education students?

The Jigsaw strategy as one of cooperative learning strategies, is rooted in five principles that are fundamental to its success and that of Business Education.

7.3.2.1 Positive interdependence

The findings in relation to the positive interdependence as the first principle of Jigsaw learning is that participants were committed to working collectively towards the achievement of goals. Every individual member knew from the beginning that their attendance in class and their contribution of work to the group was vital. Members had to do their allocated work, regroup, and give feedback and insight to compile the final

work. The findings reveal that Business Education students acknowledged that they were compelled to attend every learning session and participate as there was observation and grading of each student member at regular intervals. However, the principal of positive interdependence meant that students understood that the group could only succeed if each member committed to the learning progress of other group members. Members of each group are confident that by working together on a learning activity, all the group members will succeed which aligns with Ong *et al.* (2020) that no one in the group is left behind. Therefore, home group members need to confide in each other and join efforts for the group to complete their learning tasks effectively (*cf.* Chapter 4, Section 4.6.1 & 4.6.4).

Absenteeism during the intervention was minimal as participants realised that they were dependent on each other and felt the pressure if one member did not attend the session. However, even though students in the group depended on each other, positive interdependence discourages students who solely dependent on other students. In Jigsaw cooperative learning, each student worked independently on a different learning task. After completion of work, all members produced feedback and shared insights to compile a final piece of work which revealed a feeling of mutual need (*cf.* Chapter 4, Section 4.6.1).

7.3.2.2   *Individual accountability*

The second principle is individual accountability which requires every group member to master the learning task so that if provided with any form assessment, each of the students can attempt successfully (*cf.* Chapter 3, Section 3.6.2). During the intervention students were required to be individually responsible for their work so that every student's effort counted towards the completed task. Unlike traditional groups where individual accountability is often ignored, tasks in the Jigsaw classroom meant that each student was responsible for the tasks assigned to them as suggested by Purwanty *et al.* (2020) and aligned with Ong *et al.* (2020) that each group member has a role to play, especially the leader, who follow up on other group members and facilitates the group answers ascertaining that each member provides feedback about their allocated learning activity (*cf.* Chapter 4, Section 4.6.2). The shift of leadership amongst team members was needed to manage each individual because each

member is held accountable (*cf.* Chapter 3, Section 3.6.2). Student participants indicated that each of them had a role to play as far as the one regularly checking if there were updates on education platform, Blackboard, from the lecturer. Some groups opted for a stable role while other groups preferred to have roles circulating amongst themselves.

During the presentation stage, the lecturer may randomly ask members to respond to the questions, request any student to share the group's view or give an individual test at the end of the lesson (Ong *et al.*, 2020), which means that each student needs to be accountable. This is substantiated by Johnson and Johnson (2017) that giving an individual test to each student and randomly choosing one student's work to represent the efforts of the entire group to be one of the common ways of structuring individual accountability.

Student participants reported that the lecturer observed student participation and active engagement within groups to ensure that every member was clear on the learning expectations, students were punctual, non-resistant and encouraged to push for better learning outcomes. Participants acknowledged that Jigsaw cooperative learning, as compared to other teaching methods, ensured that every member felt accountable and responsible for their individual performance and the success of the whole group (*cf.* Chapter 6, Section 6.4.5.2)

7.3.2.3 *Face-to-face interaction*

The third principle is the face-to-face interaction or face-to-face promotive interaction where students support, facilitate and enhance the work of their fellow group members. The face-to-face interaction ensures that students use each other's names, make eye contact and use appropriate body language when they engage and pose of questions to each other. Jigsaw interactions promote face-to-face discussions amongst students ensuring that they are actively engaged, experience stimulating dialogue and the sharing of ideas or learning resources (*cf.* Chapter 4, Section 4.6.3).

Group members supported each other by orally explaining to each other how to solve the given problems, sharing one's knowledge to peers, checking for understanding, discussing concepts being learned and collating the connections between prior

learning with the present learning. Participants pointed out that they gained different perspectives and ideas during group work as they learnt from each other. Participants commented on the benefit of face-to-face interactions as they had the freedom to express their views in the security of their group (*cf.* Chapter 4, Section 4.6.3).

It is noteworthy that participants reflected on how the lecturer urged them to a more discursive mode for effective teaching and learning to take place and noted the value of Jigsaw cooperative work. Students found the Business Education subject content easy to grasp and understand as every member became an 'expert' and could share this new knowledge and insights for the success of the group (*cf.* Chapter 6, Section 6.4.3.2 & 6.4.5.1).

As observed by the researcher and revealed by the participants, team members felt at ease to convert to their native languages within original groups especially when team members want their opinions to be heard. They mostly reverted to English when in expert groups. Other participants reported to only communicating in English as the group consisted of students speaking different languages such as isiZulu, isiXhosa and Afrikaans (*cf.* Chapter 6, Section 6.4.4.1).

7.3.2.4   *Social skills*

The principle of social skills is mostly overlooked in normal traditional group work. However, Jigsaw cooperative learning equips students with various social skills such as leadership, decision making, trust-building, communication and conflict management. Other social skills such as tolerance, courtesy to friends, disagreeing without criticism, daring to maintain logical thoughts, not dominating others, being independent, and various other traits that are useful in interpersonal relationships (*cf.* Chapter 4, Section 4.6.4).

These social skills should be explicitly taught much like academic skills and not taken for granted mindful of the fact that students come from diverse backgrounds and that one's development of social skills is influenced by peers and the environment they lived in. Hashimoto (2020) recommends that students be socially conscious of one another, need to ask for clarity where necessary, listen attentively, speak properly, ask

for assistance, make suggestions, check understanding, keep the group on task, ask about feelings, disagree politely and give reasons (*cf.* Chapter 3, Section 3.6.4).

Prior to the intervention, it was imperative for the researcher to give an introductory session to students to explain the social skills that are significant to the Jigsaw approach so that they understand the reason for learning the skill, why they need to understand the skill both conceptually and behaviourally, ways in which the skill is practised, how they use the skill and how they can improve their use of the skill (*cf.* Chapter 4, Section 4.6.4).

Student participants admitted having been uneasy with some team members in the early stages of Jigsaw learning in Business Education learning sessions. Some students wanted to be in groups with friends or those whom they favoured. Participants acknowledged the significance of having diverse members in a group as they bring different views and explanations regarding the topic which was an enriching experience (*cf.* Chapter 6, Section 6.4.2.1).

Because of Jigsaw cooperative learning, some participants encountered leadership and specific roles for the first time. Every input was taken seriously as students learnt to trust each other especially with the commitment to work, attendance at classes and being on time. Participants learned to exercise patience especially towards those who were slow in understanding the content, listened attentively to their peers and disagreed politely. Students also acquired and developed other social skills such as tolerance, courtesy to friends, disagreeing without criticism, daring to maintain logical thoughts, not dominating others, being independent. Above all, participants reported that they had developed character traits such as confidence, respect, tolerance and maintaining better relationship with peers (*cf.* Chapter 6, Section 6.4.5.2 & 6.4.4.2)

7.3.2.5 *Evaluation of group processes*

Group processing, the final principle, occurs when students in their respective groups gauge their level of achievement, interaction amongst themselves and, the use of social skills to achieve a common goal. At regular intervals, students were given time to assess themselves and others to better their future interactions. Group members discussed how well their objectives were accomplished and how their working

relationships were maintained. Jigsaw learning makes it possible to expose students to materials through group work but and still maintain a high degree of personal responsibility (*cf.* Chapter 4, Section 4.6.5).

The findings revealed that participants were able to evaluate the group processes. They shared the view that working in groups can be tiring and time consuming (*cf.* Chapter 6, Section 6.4.7.1) as it involves a number of students who have different personal traits, capabilities, interests and set goals (*cf.* Chapter 6, Section 6.4.6.3). High achieving students were compelled to assist and support their peers to maintain their academic goals. Some of high achieving participants said that they preferred to work alone to accomplish their goals because working with others may hinder with their performance (*cf.* Chapter 6, Section 6.4.7.2).

During the intervention, work schedule and rubrics were uploaded on the learning platform (Blackboard) so that participants were informed of the work to be covered for the semester. This assisted participants in being prepared for each session and the use of a rubric guided the interactive group work. To evaluate the Jigsaw strategy participants completed a rubric or assessment sheet to assesses member's interdependence, social skills and face-to-face interaction. Participants agreed that such regular assessment and dialogues helped them to become mature and members of Business Education class group (*cf.* Chapter 6, Section 6.4.3.1).

Group processing includes requesting students in each group to reflect on the support received from fellow members and if there was insufficient help what can the member do to make the group even better in the next lesson sessions as compared to the previous one (Ong *et al.*, 2015). In addition, the lecturer poses questions about current encounters and future expectations of the Jigsaw cooperative learning. Such group processing not only enabled Business Education student groups to prioritise the group maintenance, but also ensured that each student received feedback and enriched learning through other members' contributions (*cf.* Chapter 4, Section 4.6.5)

The success of learning in groups is found in the process of group work (Silalahi & Hutauruk, 2020). The lecturer evaluated group processes during the intervention to give students the outcome of their group work. This involved feedback to team members regarding their presentations of the researched topic or task. In addition,

students reflected on what they had acquired and would recommend for improvement (*cf.* Chapter 3, Section 3.6.5).

To sum up, according to O'Leary *et al.* (2015), there are still arguments concerning the relative importance of these principles. Jigsaw learning's key requirement is that students must teach each other, and this means that all five principles are required for successful execution of the strategy.

7.3.3 RQ3: What significant difference is found in the performance of Business Education students before and after being exposed to Jigsaw?

Academic performance refers to the accomplishment of a given task that is measured against predetermined standards of accuracy, completeness, cost, and speed (Briggs, 2019) or achieving the required marks according to the standards set. In this study, academic performance, which is considered the extent to which the student participants have attained short term educational goals, was centralised on Test 1 (pre-test) and Test 2 (post-test), which reflects the actual performance of Business Education students before and after the Jigsaw intervention.

Tests were set in accordance with learning objectives and revised Bloom's taxonomy. Test 1 was compared with Test 2 to provide the actual results of student's performance before and after the Jigsaw intervention. Secondly, the progress marks, which included both Test 1 (pre-test) and Test 2 (post-test), were compared with examination marks. The tests marks indicate the actual statistical difference before and after the Jigsaw intervention which exhibits the academic performance of Business Education students.

A paired T-test was conducted in order to compare Test mark 1 with Test mark 2 and to compare the progress mark with the exam mark for the subject EMS1. The Cohen's d effect size was calculated in order to indicate the magnitude for the difference between two means. The following rule of thumb were used to interpret the Cohen's d: A value of 0.2 represents a small effect size. A value of 0.4 represents a medium effect size. A value of 0.6 represents a large effect size (Cumming & Calin-Jageman, 2018).

Test mark 2 (M=58.35), was statistically significantly higher than Test mark 1 (M=35.73), $t(39) = -8.428$, $p < 0.001$, $d = -1.33$. According to Cumming and Calin-

Jageman (2018), the difference reveals a large effect size indicating that the intervention had a high influence on the improvement of marks.

A paired T-test was conducted in order to compare Test mark 1 with Test mark 2 and to compare the progress mark with the exam mark for the subject BMF42. The Cohen's d effect size was calculated in order to indicate the magnitude for the difference between two means. The following rule of thumb were used to interpret the Cohen's d: A value of 0.2 represents a small effect size. A value of 0.4 represents a medium effect size. A value of 0.6 represents a large effect size (Cumming & Calin-Jageman, 2018).

Test mark 2 (M=84.30) was statistically significantly higher than Test mark 1 (M=69.65), $t(39) = -5.8$, $p < 0.001$, d= -.917. According to Cumming and Calin-Jageman (2018), the difference has a large effect size indicating that the intervention had a high influence on the improvement of marks.

It could be assumed that the improvement of Test 2 marks as compared to Test 1 marks could be because of the Jigsaw intervention. Studies have shown that there is a relationship between teaching method and students' academic performance. For example, lecturers who use a specific style of teaching and operate within a developmental learning paradigm could experience an increase in student learning outcome. It is evident that the teaching method and approach plays an important role in producing improved student performance. Research studies conducted on teaching and learning methods have demonstrated that teaching methods have an impact on students' academic performance (Asikhia, 2010; Briggs, 2019; Hans, 2002; Luntungan, 2012).

7.3.4 RQ 4: Do students using Jigsaw, as a cooperative learning approach display high levels of achievement, are goal oriented, develop greater positive self-efficacy beliefs regarding their abilities in Business Education?

Academic achievement is designated by tests and examinations scores which indicate students' scholastic positions (Ng'ang'a *et al.,* 2018). In this study, academic achievement portrays the extent to which the participants had attained long-term educational goals which is indicated by the progress marks and the end-of-year

examination results (*cf.* Chapter 7, Section 7.3.3). This is done by comparing both progress marks (T1 and T2) and examination marks, to determine whether there is statistically significant difference and as to in-depth learning brought about by the Jigsaw teaching and learning approach. Participants stated to have understood the module because of different learning experiences and views shared by their team members which was benefiting to their preparation for the November examinations (*cf.* Chapter 6, Section 6.4.2.1).

With the EMS 11 class group, the examination mark (63.17), was statistically significant higher than the progress mark (M=50.54), t(34) = -4.533, p<0.001, d= -0.766. According to Cumming and Calin-Jageman (2018), this difference also has a large effect size. That is to say, participants displayed major improved achievement and that they revealed the knowledge retention brought about by the Jigsaw teaching and learning approach.

In contrast to EMS 11, the examination mark for BMF IV at (M=50.73), was statistically significantly lower than the progress mark (M=77.10), t(39) = 9.582, p<0.001, d= 1.515. According to Cumming and Calin-Jageman (2018), this difference also has a large effect size. The researcher assumes that there was less knowledge retention achieved by Jigsaw intervention. This shows that knowledge retention is not determined by the maturity of students as compared to first years, EMS 11, who displayed high improved achievement in the examinations.

Goal orientations refer to the purpose of students while engaging in a learning task. Researchers discovered the two dimensions of goals which include mastery, learning or task goals and performance or ego goals. Mastery goals guide and adapt students to engage in a learning task in order to learn, master new skills and improve their competencies, whereas performance goals accustom students to engage in a learning activity in order to outdo their peers, receive recognition for their performance and prove their competence. Between the two dimensions of goals, mastery goals align with Jigsaw approach which is driven by the belief in face-to-face promotive interactions where students are actively engaged, experience stimulating dialogue and share ideas or learning resources in order to accomplish the learning objectives (*cf.* Chapter 4, Section 4.6.3).

Participants reported that they were forced to move out of their comfort zone and become actively involved in groups matters. The lecturer communicated the lesson objectives, the subject matter and the mode of assessment prior to the lesson and such information helped them to prepare for class (*cf.* Chapter 6, Section 6.4.6.3). Participants were prompted to aim for more effective and efficient teamwork which encouraged them to commit and support each other (*cf.* Chapter 6, Section 6.4.5.2 & 6.4.5.3), to respect time and respect for other members (*cf.* Chapter 6, Section 6.4.4.2) in order to achieve their set goals.

Self-efficacy is an ability to construct one's belief on how well one can accomplish something (Yadin, 2015). The author presented self-efficacy as student's beliefs about their capabilities to perform well, for instance, when a student is confronted with a challenging task, he/she will question his/her ability to do it and, that is, enlisting an efficacy. Beise and Sherr (2015) regard self-efficacy as a sense of confidence students portrays when they successfully master a learning activity. Self-efficacy can affect students' performance, career goals and persistence.

Participants in this study stated to have observed how they progressed, came up with problem solving strategies and considered time as an important factor in completing their academic work. Participants reported that they had an improved belief in their abilities to perform well when they chose to accept knowledgeable information, advice and even being positively reprimanded by their peers and the lecturer. Students' self-efficacy was developed through interactions with their peers in the cooperative learning strategy where students reminded each other of their allocated work, after class meetings, online learning management communication and even class attendance and in group WhatsApp chats. Students realised that the development of self-efficacy leads to higher performance which further strengthens self-efficacy.

In addition, students increased self-efficacy through identifying their academic challenges and replaced them with positive interventions. That is, students changing the way they look at their downfall and mishaps which helped them to perceive themselves as overcomers. These include embracing the motivation and the positive energy brought about by the team members during informal chats and after class meetings. Ahrens *et al.* (2016) argue that self-efficacy influences all areas of student

life positively. When Business Education students perceive themselves positively, their commitment to work and academic achievement will result in benefits. Bandura (1989) emphasised that people's level of motivation is driven by self-efficacy beliefs. For instance, a student's level of motivation, fuelled by self-efficacy, is reflected in the effort and the endurance invested in their academic work. The stronger the belief of students in on their capabilities, the greater and consistent are their efforts.

7.4   LIMITATIONS OF THE STUDY

Firstly, the researcher acknowledged the fact that the findings of this study are embedded in Business Education students' perceptions, reactions and feelings. Nonetheless, care was taken to carefully document the participant's voices using a voice recorder and use a four-point Likert-scale questionnaire to collect data. In doing so, participants responded to questions rather than deviating from the questions asked or providing irrelevant answers. Secondly, the findings are based on the responses of a restricted number of Business Education (EMS 11 and BMF IV) students in both the qualitative and quantitative phases of this research. It is also noted that this research was conducted at a one university and as a result the findings are not able to be generalised.

The fact that interviews were conducted a week prior to the start of the end-of-year examinations, when students had completed the syllabus, some participants chose not to come for the interviews regardless of the assurance made prior to the interview date. This necessitated inviting a few others who were on campus at the time to join, although the invites could not compensate the number of participants who missed the interviews. As a result, the last interview session experienced some delays. The focus group discussions took place with three BMF IV class groups who experienced the Jigsaw intervention and thus had the knowledge and experience to enrich this study with quality information.

The classroom set up at a university consists of fitted long tables and chairs which becomes frustrating and time consuming especially when students had to move from home groups to expert groups and, back to their original groups. The Jigsaw approach with its cooperative work element, works best in a classroom with rounded tables and movable chairs.

Due to a limited number of Business Education contact sessions with students per week it was felt that sessions needed more time than the allocated 80 minutes. Lastly, student absenteeism was experienced with the EMS 11 class group as compared to BMF IV and the groups needed to be adjusted for each session.

7.5   RECOMMENDATIONS

Based on the aim of this research and the findings from the empirical study, the following recommendations are offered that:

- the application of Jigsaw strategy be used as an innovative approach in teaching and learning in higher education.
- teaching and learning be student-centric
- teaching and learning take place in a conducive learning environment.
- students are encouraged to cooperatively work with their peers, share ideas and learn from team members with the objective of attaining a common goal.
- various skills such as leadership, decision making, trust-building, communication and conflict management skills are explicitly taught.
- lecturers or facilitators provide prompt feedback to students to inform further learning.
- students develop effective social relationships and have good interpersonal relationships.
- formative assessment includes portfolios, reflective exercises, presentations with rubrics and surveys

7.6   RECOMMENDATIONS FOR FURTHER RESEARCH

This research has described how the Jigsaw strategy is used as a cooperative learning approach to the teaching of Business Education at a university of technology. The following aspects are recommended for further study and research:

- The application and effect of Jigsaw strategy as a teaching strategy for Business Education lecturers and students in higher education institutions;
- The design and application of Jigsaw strategy to enhance critical thinking in Business Education classroom.

- Enhancing the ability of lecturers to fully implement the Jigsaw strategy in their teaching

- Enhancing the ability of students to fully adjust to the implementation of Jigsaw strategy in their learning;

- A similar study focusing on the Business Education lecturers' praxis could be done quantitatively and qualitatively inclusive of the control group;

- A study focusing primarily on the relationship between self-efficacy and academic achievement.

- A study examining how student characteristics such as age, gender, race or ethnicity shape students' self-efficacy.

- Future research can also investigate the interconnected reciprocal causation relationship between self-efficacy and performance of Business Education.

7.7   CONTRIBUTIONS OF THE STUDY

This doctoral study contributed educationally to the following:

- **Advance a theoretical frame of a modified Jigsaw teaching strategy:** A major findings had showed that the theory of social constructivism and the application of the modified Jigsaw model which advanced the principles, and academic performances of students significantly. This study had contributed to theory of Jigsaw as cooperative learning model in teaching Business Education at a university of technology which can be applied to both contact, blended learning, and open distance learning. This study had confirmed previous studies that the Jigsaw model as cooperative learning is a student-centred approach. The plethora of previous literature, findings of this study and the personal teaching experiences of the researcher had contributed to the theoretical foundations in the design of framework for a modified Jigsaw cooperative learning strategy (see Chapter 8 on the framework for the design of a modified Jigsaw in Business education).

- **Revised the curriculum, tuition, and assessment policies:** Currently, the CUT curriculum design unit must take notice of the findings of the modified Jigsaw framework for further implementation in curricula. The framework can

be used as approach to align the university's tuition and the assessment policies.

- **Application of a modified Jigsaw strategy as student centred pedagogical approach**: The framework can be applied to teaching and learning practices, in particular the use Jigsaw as pedagogical strategy in lesson planning. The university's continuous professional development unit can use the framework as training strategy for empowering academics in planning, designing and implementation of the Jigsaw strategy. This study contributed to the subject of the knowledge (epistemology) of Jigsaw as a cooperative learning approach in Business education.

- **Reliable data collection instrument:** The closed structured questionnaire is a reliable data collection instrument which can be revised or adopted and apply to similar contexts, whether face-to-face contact or blended learning or distance education environments, which will yield similar results.

7.8   CONCLUSION

This chapter outlined the findings and recommendations of this study regarding the effects of Jigsaw on the researcher's praxis. In the next chapter, the focus is on a framework designed to enhance academic performance of Business Education students at a university of technology.

CHAPTER 8

FRAMEWORK FOR THE USE OF A MODIFIED JIGSAW COOPERATIVE LEARNING DESIGN IN BUSINESS EDUCATION IN HIGHER EDUCATION INSTITUTIONS

8.1   INTRODUCTION

The overall aim of this study was to identify the features/components of a Jigsaw cooperative learning strategy. The recommended components could then be used to design a framework which could enhance the academic performance of Business Education students at a university of technology. This framework, designed using the reviewed literature (*cf.* Chapters 2, 3 and 4), empirical research (*cf.* Chapters 5 and 6) and my personal experience as a Business Education lecturer, is presented in this chapter. Specific components are used to create the Jigsaw cooperative learning framework. These include:

- Theoretical grounding
- Principles of the Jigsaw Strategy
- Components of the Jigsaw strategy
- The role and responsibilities of the lecturer
- Classroom management practices
- The role and responsibilities of the students
- Culturally responsive classroom management

8.2   THEORETICAL GROUNDING

The Jigsaw framework is supported by the theory of constructivism (*cf.* Chapter 2) where the widely accepted principles are that learning is active, knowledge is socially constructed and students create knowledge in relation to what they already know (MacPhail *et al.,* 2013). Learning occurs in learning communities through peer interaction, collaboration and student ownership of educational experiences. Students are encouraged to take responsibility for their learning to learn by using metacognitive

processes and to understand the complexity of their thinking. Learning is experiential in that students create knowledge and draw meaning from that knowledge through their own experiences and ideas (*cf.* Chapter 2, Section 2.3).

As students have different learning styles and learn in different ways, constructivism supports the ways in which students makes sense of new information (Feeney & Meyers, 2016). Learning methods such as the Jigsaw strategy effects a switch from passive teacher-centred methods to learner-centred methods which aligns with constructivist approaches to learning. A constructivist classroom is a setting where students will question their own and each other's beliefs and theories. Students have the opportunity to actively participate in the classroom, collaborate with others as they discuss real world issues and engage in self-directed learning as well as share learned information with their peers (Pereira & Sithole, 2020). The expertise of a constructivist lecturer in the classroom is established on the effectiveness of students' interaction with the lecturer and interface amongst students (*cf.* Chapter 2, Section 2.3.3).

The social constructivist perspective puts forward that knowledge is not built by solely by students, but rather in a broader social context which is linked to students' environment and cultural activities as well as social and collaborative encounters where students create meaning through interactions amongst themselves.

8.2 PRINCIPLES OF THE JIGSAW STRATEGY

The principles of the Jigsaw Strategy were discussed in detail in Chapter 4. In the next section, a brief description is given to each.

8.2.1 Positive Interdependence

The principle of **positive interdependence** relates to each student understanding that the group succeeds with the commitment to the learning progress of each member. By working together on a learning activity, all the group members succeed with none left lagging (Ong *et al.,* 2020). Positive interdependence expects each student to contribute towards the achievement of individual and group goals.

8.2.2   Individual Accountability

I**ndividual accountability** requires every group member to master the learning task so that each of the students can successfully respond to questioning, share the group's view or complete an individual test (Ong *et al.*, 2020). Students are empowered and take responsibility for their learning as they self-control and develop independence. In the Jigsaw approach, students are individually responsible for their assigned tasks but every student's effort counts towards the finished work (O'Leary, *et al.,* 2015).

8.2.3   Face-To-Face Interaction

Face-to-face interaction promotes the interaction of students which supports and facilitates the work of their fellow group members (O'Leary *et al.*, 2015). Jigsaw Students are actively engaged, experience stimulating dialogue and sharing of ideas as well as learning resources. Grouping members in a knee-to-knee or eye-to-eye position (Ong *et al.*, 2020:1983) within an environment conducive to learning within a cooperative strategy facilitates active student engagement, sharing knowledge, problem solving, checking for understanding, discussing concepts and collating connections between prior learning with the present learning (Abuhamda *et al.,* 2021). In this type of situation, students often find it easier to learn from each other (Purwanty *et al.*, 2020)

8.2.4   Social Skills

Social skills tend to be overlooked in normal traditional group work. Social skills relate to leadership, decision making, trust-building, communication and conflict management (Abuhamda *et al.*, 2021; O'Leary*, et al.*, 2015). Social skills should be explicitly taught to the students from diverse backgrounds as one's development of social skills is influenced by peers and the environment in which they live. A constructivist classroom promotes social and communication skills by creating a classroom environment that emphasises collaboration and exchange of ideas. Student engagement teaches students to articulate their ideas clearly as well as to collaborate on tasks effectively by sharing in group projects. Effective dialogue ensure that students listen and respect inputs from team members. Other social skills such as tolerance, courtesy to friends, disagreeing without criticism, daring to maintain logical

thoughts, not dominating others, being independent, and various other traits are fostered in a cooperative learning approach (Purwanty *et al.*, 2020).

8.2.5   Group Processing

Group processing occurs when students in their respective groups gauge their level of achievement, interaction amongst themselves and the use of social skills to achieve a common goal (O'Leary *et al.*, 2015). Group members discuss how well their objectives are accomplished, how successful working relationships are maintained, cooperative and non-cooperative member behaviour and make decisions about which behaviours should be changed or maintained (Purwanty *et al.*, 2020).

8.3   COMPONENTS OF THE JIGSAW STRATEGY

To ensure that the Jigsaw strategy is effectively and successfully implement, certain steps need to be put in place.

8.3.1   Planning and Preparation

8.3.1.1   *Introductory/information session*

Students need to be briefed about any new intervention and as such they need to be introduced to the Jigsaw strategy. During this phase, lecturer informs students about the principles, group formation, learning resources and types of assessment and assessment tools. This is to avoid any misconceptions about the approach and comparing it to comparing it to group work. Students are free to ask questions to ensure clarity of the process. Study guides are distributed to support the content material and the assessment rubric is discussed and later uploaded on the e-learning platform.

8.3.1.2   *Teach the learning content*

The lecturer presents the learning content and introduced the students to the various learning tasks to be completed in groups. The lecturer may cover only the main points and students are encouraged to ask questions to ensure their understanding.

8.3.1.3 Group formation

The formation of groups involves the grouping of heterogeneous students and the shift from competition amongst students to a more cooperative one. Students are thus divided into small groups consisting of four to six members with diverse students in terms of gender, race, ethnicity and ability. In most cases, the lecturer determines the group members, which may be allocated according to past performance, but the lecturer may give student a chance to group themselves. Diverse groups empower students with different insights from team members exhibiting different schools of thought

8.3.1.4 Academic work

The allocated work identified for the task, is divided into four or six segments or components and each student is assigned to work on one segment in 'expert' groups. The worksheets and rubrics, previously uploaded on the e-learning platform, are handed out to students for discussion and reference. The expert group member then shares the information they have gathered or researched and then return to their home groups and one by one, teach others in their group. The lecturer observes each group and acts as a facilitator and intervening where necessary.

8.3.1.5 e-Learning platform

The e-learning platform (Blackboard) allows for effective communication between lecturer and students, the uploading of learning guides (study guides) and presenting important concepts to students about the course. Team members are accountable to check the e-learning platform during the week to share the learning tasks amongst the group members. Audio recordings are also uploaded for students to keep up with sessions. The e-Learning platform can also be used to administer tests.

8.3.1.6 Student lesson preparation

Effective teaching and learning require both the lecturer and the students to be involved throughout the lesson to achieve lesson objectives. Prior to each session, students need to access learning guides, prescribed and additional sources to thoroughly prepare. Being prepared makes learning meaningful thereby connecting all

the learning activities with the learning objectives. Prepared students develop the ability to think, interact, respond and develop greater understanding.

8.3.2   Implementation

8.3.2.1   Guided instruction

Guided instruction is done in small, purposeful groups, which are based on student performance in formative assessments. This involves the lecturer working through problems with students while checking that they execute each step correctly and that any deficit in learning is immediately addressed.

8.3.2.2   Cooperative work

Cooperative work is the most crucial component of the Jigsaw cooperative learning approach. Since the Jigsaw approach revolves around the apportionment of learning tasks to all the members in the group, not only does it improve student interaction but also get all the students to participate in the learning activities, thus enhancing the cooperative learning effects. Each team member in the group is responsible for their part of the task, but the common goal is to teach each other. Members do not work in isolation, rather they are accountable for their own learning as well as the learning of the whole group.

8.3.2.3   Academic support

Academic support, to help students advance their learning and meet learning objectives, consists of learning resources such as books and learning guides, educational services such as the university library and computer labs with wi-fi, subject mentors and supplementary instructors. Within the Jigsaw sessions, the lecturer facilitates support through instructional strategies such elaborating concepts, interactions, facilitation, open communication and inviting guest speakers and students as team members make every effort to foster and support each member's understanding of the allocated task. Effective tutoring is a further type of academic support. High achieving students enter into tutoring relationships with underperforming students sharing their knowledge as well as learning resources and convening tutoring sessions.

8.3.2.4 Time allocation

The lecturer needs to allocate adequate time for the Jigsaw sessions during the planning phase. Time allocation is considered an important factor in a classroom and the time allocated to Business Education sessions needs to be effectively managed to ensure that the allocated task and scheduled work is completed and that by the end of the semester the curriculum has been covered.

8.3.3   Execution

8.3.3.1   Group presentation

During this period, students deliver their presentations of the completed task. Groups present to the rest of the groups with each member given an opportunity to present. After each group presentation, students are given the opportunity to ask questions and provide recommendations where necessary. All groups and the lecturer get an opportunity to evaluate the group using the rubric.

8.3.3.2   Individual class tests

Class tests, scheduled regularly and communicated in the learning guide at the beginning of the semester, are developed in accordance with the Revised Bloom's taxonomy. These tests assess student learning and inform further learning as feedback identifies gaps in the learning and for those who need help and support.

8.3.3.3   Group scores

When the test has been marked, the individual scores of team members are combined using a special Robert Slavin formula. Points are awarded according to the degree of member improvement in the case of each team. This manner of calculating points pushes the teams to encourage members to do better in the next tests. It is vital in assessment to create a rubric to set evaluation standards and share with students to communicate expectations, assess the performance of the group and its individual members and give regular feedback so group members can gauge their progress both as a group and individually.

8.4   THE ROLE AND RESPONSIBILITIES OF THE LECTURER

8.4.1   Policy and Practice

The revised policy on The Minimum Requirements for Teacher Education Qualifications (MRTEQ) replaced the Norms and Standards for Educator (NSE) of 2000 to align teacher education policy with the new 10-level South African Qualifications Framework (SAQA) and the Higher Education Qualifications Framework (HEQC). The policy's main purpose is to refocus teacher education programmes to focus on the development of teacher knowledge and practice guiding universities in the restructuring of their curricula for prevailing qualifications and plan for new qualifications (Van Heerden, 2019).

Teacher education programmes, regarded as the formal preparation of teachers for professional work (Garm & Karlsen, 2004: Reddy, 2021), are made up of courses which include content areas informed by disciplinary knowledge and include content knowledge in education related aspects of philosophy, history, education psychology and sociology of education. In addition, programmes cover skills in assessing student knowledge, subject matter knowledge and teaching methods per subject area and practice at classroom teaching through practicum experiences at schools.

The main thrust of the policy dictates that students (pre-service teachers) be trained as subject specialists in a minimum of two school subjects (disciplinary learning). However, the policy allows for space for institutional and regional innovation and implementation in terms of the knowledge mix presented, particularly practical and situational learning.

8.4.1.1   *Pedagogical content knowledge*

Knowledge is a cognitive process driven by experiences which produce actions within a specific curriculum. Curriculum is a plan of teaching and learning that provides knowledge for students and responds to the personal needs such as students' talents and character, societal needs such as citizenship and socialisation, and professional needs which include the mastering of the subject content (Khoza & Biyela, 2020).

The lecturers' knowledge base comprises of seven categories of knowledge. Among these are content knowledge, pedagogical knowledge, curriculum knowledge,

knowledge of students, knowledge of contexts, knowledge of educational ends, purposes and values and pedagogical content knowledge (PCK). Pedagogical content knowledge means understanding of what makes the learning of specific concepts easy or difficult which relate to the conceptions and preconceptions that students of different ages and backgrounds being to the classroom (Sunzuma & Maharaj, 2019).

PCK understands that lecturers have knowledge for the most regularly taught topics in a module and the ways of representing and formulating the learning content to make it coherent to students. Lecturers present the most powerful analogies, illustrations, examples and explanations which makes it clear for students of different ages, views and emanating from diverse backgrounds (Chan & Hume, 2019). Lecturer PCK develops overtime because of various experiences, in particular, lesson preparation as well as teaching and learning experiences (Chan & Hume, 2019).

The constructivist perspective suggests that lecturers should encourage preservice teachers (such as Business Education students in this study) to construct personal knowledge on how to teach the modules. Pre-service teaching students need to build a deep understanding of learning content from a teaching point of view that can be used to help students understand the subject matter as well as understanding how students construct their subject knowledge (Sunzuma & Maharaj, 2019).

8.4.1.2   *Knowledge of practice*

The knowledge of practice encompasses understanding of how students learn as well as their developmental levels, abilities and prior knowledge. Lecturer awareness of student learning processes, the way in which students learn, their methods of learning and learning styles (Sunzuma & Maharaj, 2019) is vital. The main objective in teacher education is to provide pre-service teachers with the practical experiences of teaching. Students are presented with opportunities to teach in order to develop their teaching competencies and acquire experiences so as to enrich their professional career over time. Practice teaching provides practical knowledge and wisdom to students as compared to reading about teaching or observing their peers teach. Furthermore, the shared knowledge of practice by the lecturer involves the need for student knowledge of how to teach and connecting the skills of teaching learned with the subject knowledge and through reflection (Reddy, 2021).

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8.4.1.3 Knowledge of teaching context

A learning environment is a platform for learning which is separated into face-to-face, online and blended learning. The educational setting establishes the kinds of learning activities to take place during the lesson. Educational settings are affected by political, social, cultural and physical environments which involves the lecturers' role in the classroom, the use of educational resources, class size, student socio-economic background, learning conditions and time allocated for teaching and learning.

Formal or informal learning activities are intended to assist lecturers in teaching the content through various roles such as facilitators, researchers, instructors with the view to be linked to the reasons for the lesson. The rationale behind is determined by the type of students and the community of practice involved in the learning process (Khoza & Biyela, 2020).

8.4.1.4 Knowledge of instructional strategies

Lecturer instructional practice refers to what actually happens in the classroom. Scholars investigating instructional practice identified the three dimensions of instructional practice which include cognitive activation, classroom management and student learning support. Cognitive activation relates to the extent to which lecturer instructional strategies and the selected learning tasks are cognitively challenging for students. Classroom management deals with efficient use of allocated classroom time, lecturer expectations of student behaviour and the prevention of disruptions in the classroom. Student support addresses issues of encouraging students whilst providing support.

Teacher knowledge of instructional strategies includes learning activities and use of teaching resources as well as representations such as explanations, examples, illustrations and the sequencing of activities that facilitate learning styles of understanding of concepts. Representations are useful for students to make sense of the subject matter. For students to acquire the intended knowledge and skills, lecturers need to know how to teach the subject content with the use of a variety of teaching approaches that emphasise problem solving and real-life applications thereby enhancing students' understanding of concepts. Lecturer content knowledge is

important in facilitating the students' construction of new knowledge with relevant examples and activities that direct the learning process.

8.5 CLASSROOM MANAGEMENT PRACTICES

8.5.1 Management Strategies

Classroom management is referred to as action that lecturers take to establish and maintain a learning environment conducive to student academic achievement by arranging the physical environment of the classroom, establishing rules and procedures, maintaining attention to lessons and engaging in academic activities along with their social, emotional, and moral growth (Shamina & Mumthas, 2018). Learning occurs when classroom management plans are in place, which implies that lecturers need to be prepared to implement classroom management strategies to promote a positive and interactive learning environment. Ineffective classroom management results in poor learning environments, low student achievement and low job satisfaction for lecturers.

8.5.2 Rules and Procedures

Rules should be set and communicated right from the onset to outline a clear routine and what is expected of students throughout the year especially with the Jigsaw approach. Informing students of the Jigsaw classroom procedures works as a guide to both the lecturer and the students of their daily classroom activities, for instance, how they enter the classroom, cooperative work, responding to questions, grading, transitions from home groups to expert groups and back to original groups (Maphalala, 2016). A set of classroom rules and procedures fosters a learning environment where students work collectively and are motivated to achieve their academic goals. Motivated teams flesh out positive habits and attitudes as well as disciplined behaviour. Students need to understand that rules are set in the interests of every student. Arguably, when a class is managed with procedures, students become responsive individuals who respect task time and reduce disruptions.

8.5.3 Communication Channels

Communication channels should be open between the students and the lecturer but the way in which communication is be conducted in the classroom should be noted. A

free and safe learning environment must be established to allow students to express themselves consistently (Maphalala, 2016). This means that dialogue in Jigsaw classrooms is between lecturer and students, the lecturer and an individual student, cooperative groups, and the whole class. To realise the outcomes of the lessons, a discussion framework in which the lecturer gives the floor to the students for extended periods of time, facilitates the students to talk and think together and does not dominate the discussion but does bring focus and structure.

8.5.4   Instructional Techniques

Lecturers need to focus on effective instructional strategies to prevent academic and behavioural difficulties and thereby facilitate increased student achievement. Effective instruction reduces disruptive behaviour and enhances academic engagement. Instruction that is effective in encouraging academic engagement and on task behaviour can be achieved through educationally relevant instructional material, a planned sequential order related to skill development at student's instructional level, frequent opportunities for students to respond to academic tasks, guided practice and immediate feedback (Shamina & Mumthas, 2018).

Lecturers should be well versed in classroom management and consider the use of multiple teaching methods to accommodate student learning style preferences (Shamina & Mumthas, 2018). Notwithstanding the benefits associated with theJigsaw approach, switching between learning styles with different classes piques the curiosity of students in cooperative work on interesting topics. Lecturers should understand that the ultimate goal in classroom management is to create a classroom atmosphere where students are free to learn and achieve academic goals where students become disciplined to stay on learning tasks.

8.5.5   Engage and Motivate

Engagement refers to how a student participates during classroom instruction. Student engagement in education is associated with higher standardised test scores and grades, better social-emotional well-being and lower rates of dropout (Ryan, North & Ferguson, 2019).

To keep students constantly engaged, Wenning and Vieyra (2020) suggest that lecturers come to class prepared, encourage students to work promptly and maintain momentum in a lesson. This includes offering a meaningful lesson with high expectations and good transitions from activity to activity. Students are encouraged to share their thoughts and demonstrate their learning in front of their peers.

Behavioural engagement refers to participation, effort, attention, persistence, positive conduct, and refraining from disruptive behaviour. Emotional engagement refers to positive effects such as enjoyment and interest and the lack of negative effects such as anger, frustration, or boredom. Cognitive engagement refers to deep learning strategies, self-regulation, and critical analysis that occur when an individual is highly focused and deeply immersed in learning or mastery of an activity (Ryan *et al.,* 2019).

Promoting meaningful discussions among team members enables students to excel in engagement through reasoning, communicating, understanding, fluency and problem solving. This kind of practice provides lecturers with the opportunity to evaluate students in the key components of student engagement (Bature, Atweh & Oreoluwa, 2020).

8.5.6   Reward Systems

Reward systems in institutions of higher learning recognise and reinforce learning through pay-and-promotion practices tied to risk-taking, flexibility, continuous improvement and other behaviours conformable to organisational learning (Norazlan, Hashim, Yunus & Hashim, 2021). In a classroom, the reward system is suggested to motivate and contribute to a successful teaching and learning. A well communicated reward system can be used as a way of managing the classroom, motivating student behaviour and stimulating classroom interactions.

According to Howard-Jones *et al.* (2018), the scientific study of engagement with educational contexts is in its early stages. However, scientific studies of 'approach motivation' have revealed the role of subcortical structures in the emotional states that encourage students to attend classes and focus on learning. Praise and recognition can be used as a social reward and as an effective means to reinforce classroom behaviours conducive to learning. Importantly, student presentations and responses

to questions appear to recruit similar subcortical regions of the brain's reward system as receiving money

It is important to highlight that reward systems have a purpose to make students carry out learning tasks more diligently to increase the tests scores and overall achievements. Rewards are seen as a pleasant stimulus that increases the frequency of the behaviour and can be used as an effective way to encourage students (Syarifuddin & Zulfah, 2020). By giving the rewards, the lecturer should consider the target behaviour that needs to be encouraged. For instance, rewards should be given not only to excellent students, but also to low achieving students when they perform better.

8.6   THE ROLE AND RESPONSIBILITIES OF STUDENTS

8.6.1   Accountable to Learning Goals

It is imperative for students to set group goals that are directed by lesson outcomes and take personal accountability of the set goals. Students should acknowledge that as part of the Jigsaw group, they are important towards the accomplishment of goals.

8.6.2   Class Attendance

Class attendance is a strong predictor of student outcomes. A regular and timely attendance is crucial for students who aim to succeed. Truancy disorganises group members and has a negative effect on the process of learning. Although absenteeism may be influenced by health issues and socio-economic hardship to name a few, students need to find mechanisms to cope and complete the allocated work.

8.6.3   Active Participation

The teaching and learning cycle require lecturers to design and plan interactive learning activities as active engagement amongst diverse groups maximises student learning and knowledge retention. Students should come to class prepared and ready to participate. Initially students may find themselves reluctant, shy or lack confidence at participating. However, encouragement by the lecturer and guidance of the group assists and give attention to such students and ensures that extroverts listen and communicate in a balanced manner.

8.6.4   Time Management

Students who understand the principles and rules for Jigsaw cooperative learning are task oriented. Their focus is on attainment of learning objectives through acquiring the knowledge, skills and personal development. Focused and well-behaved students become engaged in the tasks during the allocated time. Thus, time-keeping for the various tasks is vital. Disruptive behaviours as daydreaming, irrelevant chats and conflict are the contributing factors to time wastage. As time is wasted when students move across groups, a seating chart should be in place.

8.6.5   Task Completion

Lecturers need to emphasise the significance of task completion in relation to academic performance and student achievement. High expectations and clear goals should be communicated to students who focus on attaining the learning goals. The lecturer can promote a growth mindset over fixed mindset. A growth mindset evolves when students overlook academic performance and achievement as a 50% pass (university requirement) but rather a 50% and more inclusive of sustained knowledge, skills and personal growth post the Jigsaw experience.

8.7   CULTURALLY RESPONSIVE CLASSROOM MANAGEMENT

Responsive teaching in the differentiated classroom connects students and the content in meaningful, respectful and effective ways.

8.7.1   Prior Knowledge

Constructivism incorporates student's past experiences and knowledge towards the construction of new meaning (Shank & Santiague, 2022) and social constructivist learning incorporates engagement with the lecturer, discussions with team members and social observations during the learning process. To stimulate student's prior knowledge primarily for students who encounter problems in making connections with prior knowledge, the lecturer may ask questions to create a link or a point of reference, before progressing to a new learning content. This assists students in making the connection between the new information and the existing knowledge (Howard-Jones *et al.*, 2018).

Prior knowledge plays a prominent role in meaningful learning which facilitates the internal processes in students when learning. Prior knowledge is useful when facilitating learning activities because the preceding basic competence is related to the mastery of academic work. In addition, prior knowledge connects the information and knowledge that students hold to develop broader and more complex concepts (Siagian, Suwanto & Siregar, 2021). Prior knowledge focuses student attention on the central concepts and principles of learning materials and enables them to integrate new concepts and principles into existing cognitive structures. When presented with new learning material, students with high prior knowledge can search for relevant information quickly because they have already stored the relevant knowledge structure in long-term memory (Shangguan, *et al.*, 2020).

Liu, Liu and Lin (2019) observed that students with low prior knowledge are less confident in communicating with their peers and, cognitive overload has been assumed as one of the contributors to students' academic challenges because results in for a negative influence on motivation (Shangguan *et al.,* 2020). This means that students with low prior knowledge require more cognitive resources to benefit more from the learning environment equal to students with high prior knowledge (Shangguan *et al.*, 2020).

8.7.2   Relationships

Education is viewed as a social process rather than an individualistic process and for this reason, social relationships are a central part of education in higher learning (Schwabe, Korthals & Schils 2019). Relationships amongst team members promote students' feelings of security which successively brings positive learning experiences (Schwabe *et al.*, 2019). The roles that members play in a group setting are socialising, social and emotional support and social status where the hierarchy is established (Ryan *et al.,* 2019). Positive social relationships give students a sense of belonging, identity and security. Belongingness as interactions within an ongoing relational bond is associated with positive adjustment. A sense of belonging has a profound effect on engagement particularly as students develop a trusting relationship. The quality and nature of a peer relationships is important (Ryan *et al.*, 2019:75) as team member/peer relatedness is a key factor impacting academic motivation and achievement

In contrast, the absence of belongingness as a basic human need can lead to disengagement and suffering of well-being (Ryan *et al.*, 2019) and peer rejection has been associated with externalising and internalising problems, such as aggression, depression, anxiety and early school dropout (Schwabe *et al.*, 2019).

Relationships with the lecturer are an influential social factor affecting students' academic, social and psychological development (Schwabe *et al.*, 2019:23). Positive relationships are marked by a feeling of connectedness with the lecturer which strengthens the students' sense of safety in the learning environment and promotes positive learning and motivation. Students who feel the care of their lecturer are more likely to have a positive attitude towards their work thereby performing better academically and develop higher self-esteem. In instances where positive relationships are encouraged, students are supported in tackling challenges.

8.7.3   Culture and Background of Students

It is of the utmost importance for lecturers to know and understand their students. The type of students in the classroom affects classroom management and instruction. This suggests that lecturers need to find out and learn about their students' culture and background, beliefs and perceptions, relationships, attitudes, and rules that shape and influence every aspect of how learning takes place in the classroom. The key to culturally responsive teaching is to inquire with care about students' lives and their families' cultures, hopes and aspirations and engage with students' communities. It is thus important to take culture and background into consideration when designing modules for training of preservice teachers.

Civitillo, Juang and Schachner (2018) are of the opinion that lecturers base their teacher training on a wide array of educational theoretical perspectives. This affirms previous reviews on preparing lecturers for culturally diverse students. It is thus recommended that an integration of educational and psychological perspectives be implemented in teacher training and the assessment of beliefs about cultural diversity.

8.7.4   Student-Centred

Traditional teaching is commonly known as a teacher-centred and transmissive approach in contrast to a student-centred approach which is referred to as active

learning. The ongoing debate is the need for lecturers to shift from teacher-centred teaching to a student-centred approach whereby students engage, collaborate and take ownership of their own learning (Case, 2019). A student-centred approach considers student interests, learning styles, cultural identities, life experiences and personal challenges. The approach not only focuses on student learning experiences but attends to the skills, interactions, and mindsets known to be critical to the success of students in the evolving world (Kaput, 2018).

In a student-centred classroom, learning is personalised as students engage in a diverse variety of instructional approaches and learning experiences and academic-support strategies that are intended to address the distinct learning needs, interests, aspirations and cultural backgrounds of individual students. Learning is competency-based because students make progress when they have demonstrated mastery of the content. Students take ownership of their own learning by way of focusing on their own success added to integrating their interests and skills into the learning process (Kaput, 2018). Active learning promotes a more inclusive classroom that is supportive of all diverse students through building a more responsive learning environment. Therefore, the role of the lecturer is to create a conducive learning environment that transitions from a teacher-centred/content-oriented approach to a student-centred approach (Goodman, Barker & Cooke, 2018).

(Source: Case, 2019:645)

Figure 8.1: Teacher-centred vs. student-centred teaching

8.7.5   Cooperative Base Groups

Cooperative learning is a learner-centred approach which comprises teams of students, who work together to maximise their own and other's learning. In cooperative learning, students learn through working cooperatively (Salim *et al.,* 2019). Cooperative learning fosters organised and managed group work in which students work cooperatively in small groups to achieve academic and social goals. For a group to be cooperative, students should be mixed with respect to talent, gender, race,

personal and social characteristics and leadership is shared within the group in cooperative learning.

In cooperative learning groups, students work together collaboratively to achieve individual objectives and that of the whole group (Alacapinar & Uysal, 2020). Students working collectively in small groups which strengthens students' self-concept, self-confidence, social skills and increased classroom participation (Pasaribu, & Sianturi, 2018). In cooperative base groups, students develop a sense of responsibility towards their own learning (Alacapinar & Uysal, 2020), reveal their learning capabilities and higher academic performance as compared to individual attempts.

The main purpose of cooperative work is to enable students to achieve a higher level of integration and synthesis in studying new topics. Students get introduced to a more flexible and creative learning environment and through cooperative base groups, students display a significant improvement in student achievement and achievement of learning outcomes (Salim *et al.*, 2019). Active involvement and student discussion provide opportunities for cognitive apprenticeship or reasoning in the sociocultural context of students, peer tutoring, friend modelling and shared assessment (Pasaribu & Sianturi, 2018). Cooperative base groups encourage students to make sense of concepts thus increasing students' level of understanding and retention (Salim *et al.*, 2019).

Based upon the evidence from this study, a framework for Jigsaw cooperative learning is proposed appropriate for the teaching of Business Education within the education field of learning (see Figure 8.2).

PRINCIPLES OF THE JIGSAW STRATEGY

- Positive independence
- Individual accountability
- Face-to-face
- Social skills
- Group processing

THE MODIFIED

JIGSAW FRAMEWORK

ROLE AND RESPONSIBILITIES OF THE LECTURER

- Policy and practice
- Pedagogical content knowledge
- Knowledge of practice
- Knowledge of teaching context
- Knowledge of instructional strategies

COMPONENTS OF JIGSAW STRATEGY

- Planning and preparation
  - Introductory information session
  - Teach learning content
  - Group formation
  - Academic work
  - E-learning platform
  - Lesson preparation
- Implementation
  - Guided instruction
  - Cooperative work
  - Academic support
  - Time allocation
- Execution
  - Group presentation
  - Individual class tests
  - Group scores

CLASS MANAGEMENT

- Management strategies
- Rules and procedures
- Communication channels
- Instructional techniques
- Engage and motivate
- Reward system

ROLE AND RESPONSIBILITIES OF THE STUDENTS

- Accountable to learning goals
- Class attendance
- Active participation
- Time management
- Task completion

CULTURALLY-RESPONSIVE CLASSROOM MANAGEMENT

- Prior knowledge
- Relationships
- Culture and background of students
- Student-centred
- Cooperative base groups

CONSTRUCTIVISM

(Source: Mogashoa, 2022)

Figure 8.2: The modified jigsaw framework

8.8 CONCLUSION

The proposed modified Jigsaw framework for Business Education provides a broad model that must be considered in context within the literature chapters (cf. chapter 2,3 and 4 of this study). Business Education lecturers should prepare, make use of and implement the guidelines provided by the modified jigsaw framework for successful teaching and learning and enhancing the academic performance of Business Education students in higher education.

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Appendix A & B: Ethical Clearance

UNISA | university of south africa

UNISA COLLEGE OF EDUCATION ETHICS REVIEW COMMITTEE

Date: 2018/11/14

Dear Mrs Mogashoa

Decision: Ethics Approval from
2018/11/14 to 2023/11/14

Ref: **2018/11/14/40845621/50/MC**

Name: Mrs LG Mogashoa

Student: 40845621

Researcher(s): Name: Mrs LG Mogashoa
E-mail address: lmogasho@cut.ac.za
Telephone: +27 72 605 5909

Supervisor(s): Name: Prof MM van Wyk
E-mail address: wykmm@unisa.ac.za
Telephone: +27 12 429 4033

Title of research:
Designing a jigsaw cooperative learning strategy to enhance the academic performance of accounting education students at a university of technology

Qualification: D. Ed in Curriculum and Instructional Studies

Thank you for the application for research ethics clearance by the UNISA College of Education Ethics Review Committee for the above mentioned research. Ethics approval is granted for the period 2018/11/14 to 2023/11/14.

The **low risk** application was reviewed by the Ethics Review Committee on 2018/11/14 in compliance with the UNISA Policy on Research Ethics and the Standard Operating Procedure on Research Ethics Risk Assessment.

The proposed research may now commence with the provisions that:
1. The researcher(s) will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.

Central University of
Technology, Free State

RESEARCH ETHICS APPROVAL: STAFF

12 March 2019

Ethical clearance has been provided on behalf of the Faculty Research and Innovation Committee
[13/04/19] in view of the CUT Research Ethics and Integrity Framework, 2016 with reference
number **[EHUM/12/03/19]**.

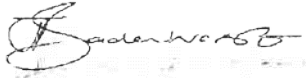|	
Name(s) of Applicant(s) and staff number(s)	Ms Lesang Grace Mogashoa 12614
Faculty and Department	Department of Language and Social Sciences
Title of Project	Designing a jigsaw cooperative learning strategy to enhance the academic performance of accounting education students at a university of technology.
Proposed timeframe (Dates)	5 February to 30 November 2019
Research participants	EMS education students, Bloemfontein campus

Data gathering instrument(s) (provide preliminary questionnaire/interview schedule, observation schedules, etc.)	Questionnaire, interviews and observation schedule
Data gathering procedure (When/Where)	1 April -November 2019; in university classrooms (for classroom observations and student questionnaires and a committee room for interviews.
Ethical considerations (Briefly)	The researcher will first explain the purpose of conducting research to participants and, ask for permission from participants to take part in the research and if they agree, they will sign a form of consent. I will also let them know that they are free to withdraw from research at any time. Participants will also be informed that they are free to use the language they feel that it is easy to express themselves in. They will also be informed that their names will not be reflected in the data provided to me (anonymity). Just because I am familiar with the participants, there will be appointed interviewers for students' interviews and observers for classroom observations.

The following special conditions were set:

x	Submit copy of questionnaire and interview schedule before commencing with project.

We wish you success with your research project.

Regards

Prof JW Badenhorst

(Ethics committee representative: Research with humans)

Appendix C: Questionnaire

A COVER LETTER FOR QUESTIONNAIRE

Title of questionnaire: Designing a modified Jigsaw cooperative learning strategy to enhance the academic performance of Business education students at a University of Technology

Dear respondent

This questionnaire forms part of my doctoral research entitled: **Designing a Jigsaw cooperative learning strategy to enhance the academic performance of accounting education students at a university of technology** for the degree PhD: Curriculum Studies at the University of South Africa. You have been selected by a purposive sampling strategy from the population of 110 Business Education students. Hence, I invite you to take part in this survey. The aim of this study is to design a modified Jigsaw cooperative learning strategy to enhance academic performance of Business Education students at a University of Technology.

The findings of the study may benefit the university, Business education lecturers and students. It will also inform lecturers and students about the importance of Jigsaw cooperative learning in relation to their classroom practices and, to improve academic performance of Business education students at a University of Technology.

You are kindly requested to complete this survey questionnaire, comprising of **SECTIONS A, B and C** as honestly and frankly as possible and according to your personal views and experience. No foreseeable risks are associated with the completion of the questionnaire which is for research purposes only. The questionnaire will take approximately 30 minutes to complete.

You are not required to indicate your name and your anonymity will be ensured; however, indication of your age, gender, home language etcetera will contribute to a more comprehensive analysis. All information obtained from this questionnaire will be used for research purposes only and will remain confidential. Your participation in this survey is voluntary and you have the right to omit any question if so desired, or to withdraw from answering this survey without penalty at any stage. After completion of the study, an electronic summary of the findings of the research will be made available to you on request.

Permission to undertake this survey has been granted by the Central University of Technology, Bloemfontein and Research Ethics Committee of the College of Education, UNISA. If you have any research-related enquiries, they can be addressed directly to me or my supervisor.

My contact details are: **051 5073324 / 0726055909** e-mail: **40845621@mylife.unisa.ac.za** and my supervisor can be reached at **0835445217** in the **Department of Curriculum and Instructional Studies**, College of Education, UNISA, e-mail: **vwymm@unisa.ac.za**.

By completing the questionnaire, you imply that you have agreed to participate in this research.

Yours Sincerely

Ms Lesang Grace Mogashoa

STUDENT QUESTIONNAIRE

SECTION A: BIOGRAPHICAL INFORMATION OF BUSINESS EDUCATION STUDENTS

Please tick (√) against the appropriate answer in this section			
1.1	Gender	1. Male	
		2.Female	
1.2	Age	1. 16-20 yrs and below	
		2.21-25 yrs	
		3.26-30yrs	
		4.31-35yrs	
		5. 36 yrs or more	
1.3	Year completed Matric	1.2012-less	
		2.2014-2013	
		3.2015-2016	
		4.2017-2018	
1.4	Home language	1. Afrikaans	
		2.Xhosa	

Please tick (√) against the appropriate answer in this section			
		3.Sotho	
		4.Tswana	
		5.Zulu	
		6. Other	
1.5	Environment where you grew up	1.Farm	
		2.Location	
		3.Village	
		4.City	

SECTION B: Teaching & learning, Students' self-efficacy beliefs and Goal orientation <u>before</u> Jigsaw intervention.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

	To what extent do you agree or disagree with the statements below <u>before</u> the use of Jigsaw intervention	SA	A	D	SD
2.1	I avoid responding to probes from the lecturer in Business Education				
2.2	I persevere through the difficult concepts of Business Education				
2.3	I take responsibility of my academic failures				
2.4	I tend to take a narrow view of the allocated tasks				
2.5	I always commit to my academic goals				

To what extent do you agree or disagree with the statements below <u>before</u> the use of Jigsaw intervention	SA	A	D	SD
2.6	I don't believe that my actions and decisions make difference in my learning achievements				
2.7	When I do better than usual, it is often because of the extra effort I put in				
2.8	I strive to overcome and master the challenges I encounter in Business Education				
2.9	I quickly lose confidence in my learning abilities once there are uncertainties				
2.10	I believe goals that require extra effort to achieve are beyond my capabilities				
2.11	I put more effort into completing my learning tasks				
2.12	I commit more when a task given is challenging				
2.13	I have no confidence in getting help from my peers				
2.14	I only have confidence in getting assistance from my Business Education lecturer				
2.15	If I underachieve in Business Education, it is most likely to my ineffective preparation for assessments				
2.16	Even when I try hard, I don't do well in Business Education				
2.17	I intend completing my studies in record time				

To what extent do you agree or disagree with the statements below <u>before</u> the use of Jigsaw intervention	SA	A	D	SD
2.18	I prefer working in a group environment to help each other to achieve our academic goals				
2.19	I prefer working independently to achieve academic goals				
2.20	I prefer being in the same group with my friends				
2.21	I am able to work with anybody in a group task other than my friends				
2.22	I am not confident to ask questions in Business Education class				

SECTION B: Teaching & learning, Students' self-efficacy beliefs and Goal orientation <u>after</u> the JIGSAW intervention.

Strongly Agree (SA), Agree (A), Disagree (D), Strongly Disagree (SD)

	To what extent do you agree or disagree that the use of Jigsaw as a cooperative learning strategy enhances learning of Business Education?	SA	A	D	SD
3.1	I avoid responding to probes from the lecturer in Business Education				
3.2	I persevere through the difficult concepts of Business Education				
3.3	I take responsibility of my academic failures				
3.4	I tend to take a narrow view of the allocated tasks				
3.5	I always commit to my academic goals				
3.6	I don't believe that my actions and decisions make difference in my learning achievements				
3.7	When I do better than usual, it is often because of the extra effort I put in				
3.8	I strive to overcome and master the challenges I encounter in Business Education				
3.9	I quickly lose confidence in my learning abilities once there are uncertainties				
3.10	I believe goals that require extra effort to achieve are beyond my capabilities				
3.11	I put more effort into completing my learning tasks				

To what extent do you agree or disagree that the use of Jigsaw as a cooperative learning strategy enhances learning of Business Education?	SA	A	D	SD
3.12	I commit more when a task given is challenging				
3.13	I have no confidence in getting help from my peers				
3.14	I only have confidence in getting assistance from my Business Education lecturer				
3.15	If I underachieve in Business Education, it is most likely to my ineffective preparation for assessments				
3.16	Even when I try hard, I don't do well in Business Education				
3.17	I intend completing my studies in record time				
3.18	I prefer working in a group environment to help each other to achieve our academic goals				
3.19	I prefer working independently to achieve academic goals				
3.20	I prefer being in the same group with my friends				
3.21	I am able to work with anybody in a group task other than my friends				
3.22	I am not confident to ask questions in Business Education class				

Thank you very much for your participation in this study.

Appendix D: Interview schedule for focus groups

CONSENT / ASSENT TO PARTICIPATE IN THIS STUDY

I, _____, confirm that the person asking my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I had enough opportunity to ask questions and am prepared to participate in the study. I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the interview.

I have received a signed copy of the informed consent agreement.

Participant: Name & Surname (please print)   _____

Participant Signature   Date

_____   _____

Researcher's Name & Surname (please print): Lesang Grace Mogashoa

_____   <u>November 2019</u>

1   Students' learning experiences

1.1   What are your experiences and views of Jigsaw strategy in your
                Business education lessons this year?

1.2   How do you feel about working with others?

1.3   Did you learn anything new when working collaboratively? What were your encounters?

2   Lecturers' role

2.1   What was the role of the lecturers' lesson preparedness?

2.2   How was the level of lecturer and student interactions in the classroom? Was the lecturer helpful?

2.3   Does the lecturer issue enough feedback?

3   Communication

3.1   How did you communicate amongst each other as a group?

3.2   What have you learnt about communication and code-switching during group interactions?

3.3   What mode of communication worked for you after lessons?

4   Classroom attendance

4.1   How did Jigsaw affect your class attendance?

4.2   How did you encourage or push one another?

5   Students' performance

5.1   How do you feel going forward after Jigsaw experience, going to the exams?

5.2   How is your overall performance since you worked as a group?

6   Challenges and recommendations

6.1   What was the **major challenge** you faced with a Jigsaw strategy in a Business education classroom? What do you suggest could be done to solve the challenges?

7.   Benefits of Jigsaw

7.1   What were the **benefits** brought about by the Jigsaw experience?

Thank you for your inputs towards this study.

Appendix E: Proof of editing

To whom it may concern

This letter serves to confirm that editing and proofreading was done for:

LESANG GRACE MOGASHOA

Doctor of Education

University of South Africa

DESIGNING A MODIFIED JIGSAW COOPERATIVE LEARNING STRATEGY TO ENHANCE ACADEMIC PERFORMANCE OF BUSINESS EDUCATION STUDENTS AT A UNIVERSITY OF TECHNOLOGY

Cilla Dowse
12 June 2022

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Appendix F: Turnitin report

Turnitin Originality Report

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Submitted: 1

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