

**Action research on implementing Whole Brain[®] hybrid learning in
private higher education**

by

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Submitted in partial fulfilment of the requirements for the degree

MAGISTER EDUCATIONIS

in the Faculty of Education

at the

UNIVERSITY OF PRETORIA

Supervisor: Prof PH du Toit

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DECLARATION

I declare that the dissertation that I hereby submit for the degree Magister Educationis at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.



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The research ethics permission necessary for the research study described in this work has been received by the author whose name appears on the title page of this dissertation. The author certifies that she has adhered to the ethics standards required by the policy guidelines for responsible research and the code of ethics for researchers at the University of Pretoria.

DEDICATION

I dedicate this research to every student and teacher in the schools of South Africa. I hope this study will empower you to use Whole Brain® hybrid facilitation of learning in your classrooms to be inclusive to all learners.

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I would like to express my sincere gratitude to the following people who have helped me achieve this milestone in my life:

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I know the plans I have in mind for you, declares the LORD; they are plans for peace, not disaster, to give you a future filled with hope.

Jeremiah 29:11

ABSTRACT

With this action research study, I aimed to monitor the development of my professional identity as early-career academic. The study focused on implementing Whole Brain[®] hybrid modes of learning in the Life Skills module I offered during the COVID-19 pandemic. Constructivism provided the theoretical framing for the Whole Brain[®] hybrid learning opportunities. A four-cycle action research process was followed.

At the commencement of the study, I completed the Herrmann Brain Dominance Instrument[®] (HBDI[®]). This instrument identifies one's preference for modes of thinking. My preferred modes of thinking enriched my teaching practice and informed the way I reflected on myself and my practice. I came to realise that I needed to accommodate the thinking preferences of my students, irrespective of my own, when facilitating and assessing learning. Using Whole Brain[®] hybrid learning principles is a novel idea that was studied for the first time in my specific context.

Qualitative data was collected by means of student feedback questionnaires, observation of practice, keeping a reflective journal and collecting photo evidence. Data was collected during and after four hybrid learning opportunities.

The meaning I constructed during the implementation of Whole Brain[®] hybrid learning is an outcome of the study. The rationale for using an action research design to monitor the development of my professional lecturer identity is double-layered: it offered me the opportunity to reflect on self and practice in a scholarly fashion. It served as an exemplar of Whole Brain[®] reflexive practice that can be shared with the wider scholarly community.

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Key Terms

Action research, constructivism, novice academic, private higher education practice, lecturer professional identity development, Whole Brain[®] hybrid learning.

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16 October 2023

TO WHOM IT MAY CONCERN

I, the undersigned, hereby declare that the master's dissertation titled **Action research on implementing Whole Brain[®] hybrid learning in private higher education.**

[excluding the references] by **Elrien Swanepoel** has been edited.

It remains the responsibility of the candidate to effect the recommended changes.



Prof. Tinus Kühn

LIST OF ABBREVIATIONS AND ACRONYMS

AROS	Akademie Reformatoriese Opleiding en Studies
BEd	Bachelor of Education
CAPS	Curriculum Assessment Policy Statement
HBDI®	Herrmann Brain Dominance Instrument®
LMS	Learning Management System
NQF	National Qualification Framework
SoTL	Scholarship of Teaching and Learning
WIL	Work-integrated Learning

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CHAPTER 1: INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

This study investigated the use of Whole Brain[®] learning in a hybrid learning environment, intending to improve my teaching practice at a private higher education institution in Pretoria, South Africa. I was the researcher, commonly called practitioner-researcher (McNiff, 2016). I merged and implemented a Whole Brain[®] approach to both the action research conducted and facilitating of hybrid learning during the study. The notion of Whole Brain[®] thinking is a learning theory initially developed by Herrmann (1995; 1996). This theory has been extensively discussed by scholars such as De Boer et al. (2013); De Boer et al. (2015); Du Toit et al. (2014); Smit and Du Toit (2016). The facilitating of learning was enacted in a hybrid learning environment. The construct *facilitating of learning in a hybrid mode* can be described as integrating traditional face-to-face facilitating of learning and a Learning Management System (LMS) in the 21st-century higher education classroom (Olivier, 2014). Whole Brain[®] learning and hybrid learning are briefly discussed in this chapter and in more detail in Chapter 2. This study is unique as it is the first of its kind with a focus on Whole Brain[®] facilitating of learning in a hybrid learning environment in a higher education institution in South Africa with Afrikaans as the medium of instruction.

Buckner (2017) estimates that there are about 15 129 higher education institutions worldwide. This number comprises public and private higher education institutions offering undergraduate and postgraduate degrees, diplomas and certificates. Levy (2018) suggests that private higher education has become one of the fastest-growing parts of higher education worldwide. The number of private higher education institutions not government-funded is estimated to make up more than 50% of the higher education institutions worldwide.

The same increase in private higher education institutions is seen in South Africa. According to Statistics South Africa (2019), in the past 20 years, participation in higher education institutions has increased by 31.7%, which means a higher demand for higher education institutions. According to the Department of Higher

Education and Training (2022), South Africa has 28 universities, including 11 universities of technology. In addition, there are 93 registered private higher education institutions and 290 colleges, which include any institution that provides higher education certificates, diplomas or technical/vocational post-secondary education (Department of Higher Education and Training, 2021). In South Africa, all public universities are government-funded. Any other institutions that offer higher education and training are privately owned and do not receive government funds.

The private higher education sector in South Africa has developed to fill the gap in the workforce in South Africa. Most private higher education institutions offer Work-integrated Learning (WIL) qualifications (Nukunah et al., 2019). In Pretoria, seven higher education institutions provide B.Ed. degrees. Three institutions, including my institution, offer B.Ed. degrees in Afrikaans. The language of instruction used at other institutions is English. South Africa's school system is divided into primary and secondary schools. A primary school is further divided into respective phases, namely the Foundation, Intermediate and the Senior Phase. The Foundation Phase is for learners 7 to 9 years of age and focuses on language, Mathematics and Life Skills. In the Intermediate Phase, learners are 10 to 12 years of age and subjects taught in this phase are languages, Mathematics, Natural Sciences, Social Sciences and Life Skills. The secondary school is divided into the Senior and FET Phase. The Senior Phase is for learners aged 13 to 15 years. The subjects include languages, Mathematics, Social Sciences, Natural Sciences, Technology, Life Orientation, Economic Management Science and Visual Arts. The FET Phase is for learners aged 16 to 18 years. In this phase, learners have four compulsory subjects: Home Language, First Additional Language, Mathematics or Mathematical Literacy, Life Orientation and then a minimum of three subjects of their choice, which differ depending on the school.

The private higher education institution where the study took place is a private Christian institution. The institution offers an undergraduate degree in education for value-driven students to enter the teaching profession (Akademie Reformatoriese Opleiding en Studies, 2021). The B.Ed. (Intermediate Phase) four-year degree consists of two specialised fields of study: Mathematics/Natural Science or Life Skills/Social Science. The participants in the action research I conducted were fourth-year students in the B.Ed. (Intermediate Phase) programme. Life Skills, a module the participants are enrolled in, consists of the following learning areas:

Personal and Social Wellbeing, Movement Science, Visual and Performance Arts. Learning areas are defined by the Department of Basic Education as skills in a specific subject that a learner must master to pass the subject.

To obtain a B.Ed. (Intermediate Phase) degree, a student must qualify with the following minimum requirements to be a responsible and professionally qualified beginner teacher: the graduate must be competent in subject content knowledge, relevant educational theories and methodology (Department of Higher Education and Training, 2011). In addition, Work-integrated Learning (WIL) also forms part of the minimum requirements. The higher education institution's Work-integrated Learning (WIL) is structured as follows: first-year students must complete one period of three consecutive weeks at a school; second-year students complete two periods of three consecutive weeks at a school; third-year students complete two periods of three consecutive weeks each; and fourth-year students complete two periods of three consecutive weeks. Students can choose the school where they want to do their WIL period. Otherwise, Akademie Reformatoriese Opleiding en Studies (Aros) will organise a school for them to do their WIL period. Many students are employed as teaching assistants at a specific school, which is usually the school where they do their WIL period (Akademie Reformatoriese Opleiding en Studies, 2022).

For the WIL periods, the students are placed at public or private schools. The public schools follow the South African Government's National Curriculum (Department of Basic Education, 2014). Private schools use either the prescribed National Curriculum or any other curriculum that the Department of Basic Education accredits. The Department of Basic Education (2018) stipulates in its documented guidelines on the rights and responsibilities of independent schools that the independent school may follow any curriculum as long as the curriculum meets the standards of the National Curriculum and the qualification is registered with the National Qualification Framework (NQF). The NQF is a national framework that is used in South Africa to rate learning achievements associated with a certain qualification in South Africa. The qualifications are further monitored by Umalusi – meaning shepherd or herder in the Nguni languages – that is a council in South Africa that ensures the quality of basic and further training qualifications. More often than not, the professional development of students focuses on the National Curriculum that is the Curriculum Assessment Policy (CAPS) of South Africa. The mode of learning followed by the exemplar higher education institution is a

combination of distance learning with additional support to students through interactive online sessions and workshops (Akademie Reformatoriese Opleiding en Studies, 2022) – commonly referred to as hybrid learning. My teaching philosophy took shape against this background.

My teaching philosophy is constructed as follows: *As a transformational higher education practitioner, I aim to create opportunities for students for self-empowerment and self-equipment to become transformational teachers, teachers who can upskill the self holistically, and offer similar opportunities for their learners so that the learners can develop the self holistically. I believe it is crucial for students to understand how they and I are unique individuals through my professionalism that is displayed in my teaching practice as far as preferences for modes of thinking are concerned, and how we should challenge one another to become more adaptable.* This philosophy is not static; it constantly changes as I develop as a lecturer and in my professional practice. My philosophy continually informs my lecturer identity; it reflects an ongoing constructivist process of making new meaning, deconstructing meaning, and coming up with something new. What I gave birth to while conducting the action research was enriching my professional teaching practice by using the principles of facilitating Whole Brain[®] hybrid learning.

1.2 BACKGROUND AND CONTEXT

I started my teaching career as a Life Skills teacher in the Intermediate, Senior and FET Phase (learners aged 10 to 18 years). The school where I was employed was a small private school for learners who struggled to cope in a mainstream school. The learners had either dyslexia or attention deficit hyperactivity disorder (ADHD). The school had both primary and secondary school learners. Public schools in South Africa are generally divided into primary schools (learners aged 6 to 13 years) and secondary schools (learners aged 14 to 18 years). I decided to move to higher education, where I am able to work in a more academic environment and have the opportunity to work with young adults. I have been a Life Skills lecturer at a private higher education institution in Pretoria for the past seven years where I started lecturing on the use of technology in the classroom. My student base is first- to fourth-year students. One of the things I strive to do as a lecturer is to create opportunities for self-empowerment of my students to teach the respective Intermediate Phase Life Skills learning areas successfully in their teaching practice.

The private higher education institution has approximately 2 050 registered students. These include B.Ed. (Foundation Phase, Intermediate Phase and Senior and FET Phase) students.

Why I chose to research Whole[®] Brain learning and hybrid learning in tandem was informed by my experiences during my students' WIL placements. I consistently observed that learners were more engaged when the pre-service teacher made use of different resources, teaching methods and technology when teaching. A pre-service teacher is a student that is pursuing a B.Ed. degree and is working as a teaching assistant or full-time teacher. I saw a gap between my teaching and the teaching practices of students and regarded this as an opportunity not only to transform my teaching practice but also to create opportunities for my students to be able to transform their teaching practice by becoming Whole Brain[®] facilitators of learning. To make the change, I had to reflect on my practice. Before the COVID-19 pandemic, I did not optimise using a hybrid mode when facilitating learning. I did not use the institution's learning management system (LMS) to its full capacity. The COVID-19 pandemic forced me to change how I used the LMS. The LMS that we used was Moodle.

I focused mainly on transforming my teaching practice by facilitating Whole Brain[®] hybrid learning. I used the principles of action research to monitor my implementation of facilitating Whole Brain[®] hybrid learning. I specifically focused on how I accommodated different thinking preferences while acting in a hybrid mode. I chose to use the construct *learning opportunities* proposed by Smit and du Toit (2016) instead of lectures. The reason is that the construct *lecture* seems to suggest a lecturer-centred approach to teaching, while with *learning opportunity* the focus is on learning. I favour using *learning-centred* as opposed to *student-centred*. As Du Toit (2012) eloquently puts it, the reason is that changing from a lecturer-centred approach to a student-centred approach is simply to flip the coin. The student and the lecturer learn during a learning opportunity – the learning is reciprocal. Reciprocal learning means that students learn from the lecturer, the lecturer from students and students from one another (Love et al., 2021). Tshotetsi et al. (2021) highlight the importance of reciprocal learning in a different context – a clinical setting in health sciences.

1.3 RATIONALE

The rationale for the study is to develop my lecturer identity by using a Whole Brain® approach to facilitate hybrid learning. When reviewing the literature on the two central constructs in my study, Whole Brain® facilitating of learning and hybrid learning, it became apparent that these two are discussed separately but are never integrated. When looking at the literature on hybrid learning in higher education, the use of hybrid learning has increased significantly in the past few years (Farjon et al., 2019). Furthermore, during the COVID-19 pandemic, it became more and more apparent that there was a need for training in the correct implementation of online learning (Gnaur et al., 2020). I thus wanted to develop my own lecturer identity by implementing a hybrid approach to learning. The second construct that formed an essential part of my study was a Whole Brain® approach to facilitating learning. The literature suggests that students have a positive experience using a Whole Brain® approach to facilitating learning (De Boer et al., 2013; De Boer et al., 2015; Herrmann, 1995).

Thus, I identified a gap in the research and started combining the two constructs to develop a Whole Brain® hybrid approach to facilitating learning. I used both contact and online modes of facilitating learning and incorporated the principles of Whole Brain® thinking to transform my teaching practice and develop my lecturer identity.

1.4 FOCUS AND PURPOSE

The purpose of the action research study was to develop my professional identity as a lecturer while I transformed my teaching practice by using the principles of Whole Brain® thinking. The theory on Whole Brain® thinking was useful as a transformational approach to facilitating and assessing learning. The theory is elaborated on in more detail in Chapter 2. It suffices to say that I was challenged to work beyond my comfort zone. My comfort zone, in terms of how I think and do, is represented by means of my brain profile detailed in Figure 4.1 and accompanying narrative. It is important to know that it is about preferences and not abilities.

It is important to take note of the fact that my preferred way of thinking and doing is being structured. My less preferred way of doing and thinking is being experimental, thinking 'big picture' and being innovative. This dichotomy served as a point of departure for the entire study.

1.5 RESEARCH QUESTIONS

My main research question underscores the essence of what my study focuses on: How can implementing a Whole Brain® hybrid mode of learning contribute to transforming my teaching practice?

The following two sub-questions guided my study:

- How can I successfully facilitate Whole Brain® hybrid learning through online synchronous and asynchronous sessions to transform my teaching practice?
- How can I develop my professional identity as a lecturer?

1.6 THEORETICAL FRAMING

Social constructivism that is explained shortly here and in detail in Chapter 2 was used as the theoretical framework for the study. There are different viewpoints on constructivism. Dewey and Bentley (1960) suggest that constructivism can only exist when there is a relation between ideas and reality while Khan (2011) explains that constructivism can be explained as an individual's capability to process stimuli from their environment.

Applefield et al. (2001) suggest that constructivism can be divided into three types. The first type is exogenous constructivism, the second type is endogenous constructivism or cognitive constructivism, and the third type is dialectical or social constructivism where knowledge is constructed through social interaction that involves sharing, comparing and debating to construct new knowledge. I agree on the definition of social constructivism by Applefield et al. (2001) that knowledge is constructed through social interaction with one's peers.

During the study, the students who participated in my study had to make use of the knowledge of Physical Education they had gained over the past three years and to apply it to gymnastics that they had come into contact with during the four cycles of the action research study. The learning task that was given to the students required of them to do further research, work in groups, make use of new tools and broaden their skills to be able to construct new knowledge about gymnastics. Some students had prior knowledge of gymnastics or acrobatics while other students had to research all the components that were given as part of the instructions.

Social constructivism was used where the participants and I actively constructed knowledge about gymnastics as a theme of Physical Education using facilitating Whole Brain[®] hybrid learning. As previously described, Life Skills is divided into four learning areas; these learning areas are further divided into themes under each learning area. The themes constitute the specific content that should be covered during a set time period. The Whole Brain[®] hybrid learning opportunities empowered the students to construct knowledge on gymnastics.

1.7 LITERATURE REVIEW

My literature review include the following: Whole Brain[®] facilitating of learning, hybrid teaching and learning and lecturer identity. In the next section I briefly discuss the respective constructs used in the study.

The first construct that I discuss is Whole Brain[®] facilitating of learning. The construct is derived from a model designed by De Boer et al. (2013) that explains different ways to facilitate learning by making use of the Whole Brain[®] Model that was created by Herrmann (1996); it metaphorically divides the brain into four quadrants. Herrmann (1996) suggests that every individual has a preference on how they think, learn and solve problems. Herrmann's Whole Brain[®] Model as well as the Comprehensive Whole Brain[®] Model are discussed in more detail in Chapter 2.

Hybrid learning is a concept first used at the beginning of 2000 (Cooney et al., 2000). It can be defined as a combination of online and face-to-face learning that can take place synchronously, which means that facilitating of learning takes place at the same time and space. This can include an online space like Zoom. Facilitating of learning can further take place asynchronously, which means that the facilitator and student may not be in the same time and place when facilitating of learning takes place (Osorio-Gomez & Duart, 2012). The last construct that I discuss is lecturer identity.

Lecturer identity as a construct can be described as intrapersonal – the self. The internal aspects include the part of the lecturer's personal life, such as class, race and gender; the interpersonal (social) aspect refers to discourse, attitudes and understanding of the educational environment. The lecturer's experiences form a professional identity in the academic context (Mockler, 2011). I focused on the role

of the lecturer's community as part of the social component influencing the professional actions taken by the lecturer. Every lecturer has their own core beliefs, values and assumptions about teaching and learning (Castaneda, 2011).

1.8 RESEARCH DESIGN: ACTION RESEARCH

I made use of an action research design. Action research is described as a practical cyclical process that focuses on change (Ebersöhn et al., 2007; Joubert et al., 2016; McAteer, 2013). It involves the participation of both the researcher and the participants (Creswell et al., 2014). It is essential to note that action research is spontaneous but that constant revising occurs during the action research process (McNiff, 2013).

1.8.1 Action research process

My study consisted of four action research cycles. In each cycle, the participants had to complete a learning task before and during an interactive learning opportunity. The participants engaged with each other and I facilitated the learning opportunity. After each learning opportunity, the participants were offered the opportunity to reflect on their experience during the cycle as (McAteer, 2013) proposes. I refer to each cycle in Chapter 3 as part of explicating the research design. I discuss each cycle in detail in Chapter 4.

1.8.2 Data collection

Data collection took place continually over four weeks. I made use of qualitative and quantitative data collection methods. Data was collected from the participants by means of student feedback questionnaires that they had to fill in after completing the respective learning tasks. The feedback questionnaire in essence focused on their experiences of the learning tasks, specifically on the parts of the learning task they enjoyed most, and aspects that they found challenging – similar to what (Smit, 2020) used. The students completed two questionnaires: one after completion of the asynchronous learning task and then the second questionnaire after the online synchronous session.

I collected data by means of observation and reflection after each learning opportunity. After the online synchronous session, I watched the recording of the

online synchronous session and made use of an observation sheet where I observed and reflected on my own practice. I also kept a reflective journal (Appendix A – D) during the four weeks; it was used as a data source. Another set of data that was collected entailed the completion of the HBDI®. The data came in the form of qualitative and quantitative data sets, indicating my thinking preferences and how they affected the way in which I facilitated a learning opportunity. Each data collection method is discussed in more detail in Chapter 3.

1.8.3 Data analysis

The data analysis process was done intermittently due to the cyclical nature of the study. Qualitative and quantitative methods of analysis were used.

Qualitative data analysis was done by observing the visual data that was presented during the online synchronous sessions and the open-ended questions in the questionnaire. This helped me to improve my practice in the next cycle. I also used the outcome of the analysis of my HBDI® brain profile as part of the qualitative data.

The quantitative data analysis was conducted as follows: The feedback questionnaire responses were exported from Google Drive to Excel, which was used as a source to analyse the data. I made use of descriptive analysis. The brain profile also provided quantitative data that had already been analysed. After analysing the data, I drew conclusions that are discussed in Chapter 5.

1.9 QUALITY ASSURANCE

Dana (2009) identifies five criteria to help the researcher ensure trustworthiness. The first criterion is the context of the study, namely the private higher education institution where I am a lecturer. The second includes the purpose of the study, which was to transform my teaching practice by implementing the Whole Brain® thinking model and hybrid facilitating of learning. The third principle relates to the research design, of which action research was my design of choice. Finally, the fourth principle relates to learning: By means of conducting the research I focused on learning more about the Whole Brain® Model and hybrid learning; and the study revolved around learning *per se*.

Pelech (2021) uses the definition of Hammersley that reads as follows: "An account is valid or true if it represents accurately those features of the phenomenon that it is intended to describe, explain, or theorize" (Pelech, 2021:168). The author further suggests that the validity of an action research study can only be tested when it can be determined whether the goal of the research has been accomplished or not.

During my action research study, the goal was to transform my teaching practice making use of facilitating Whole Brain® hybrid learning. The validity of the study was proved in three ways: the feedback given by the students; the reflective journal I kept and the observation sheets I completed. All these data sources showed that the purpose of the study had been accomplished. The validity of the study is discussed in more detail in Chapter 3. In the next section, the ethics considerations are discussed.

1.10 ETHICS CONSIDERATIONS

I applied to the Ethics Committee of the Faculty of Education, University of Pretoria for ethical clearance. The purpose of the study and the pre-service teachers' involvement in my research were explained. I obtained ethics clearance from the University on 18 Augustus 2020. The clearance certificate number is EDU021/20 (Consult the certificate included, see page ii.)

As an action researcher, I had a dual role as a facilitator of learning and as a researcher. I discussed the purpose of the research with the participants during the first online session. It was emphasised that participation was voluntary, and participants could withdraw at any time if they so wished. All participants completed letters of consent and were assured that they would remain anonymous throughout the action research process and the reporting of findings.

1.11 CONCLUSION

Through the lens of constructivism, the Whole Brain® Model and the comprehensive Whole Brain® Model, my study endeavoured to investigate how I can transform my own practice through facilitating Whole Brain® hybrid learning. The study further measured if Whole Brain® hybrid learning can be successfully implemented at a private higher education institution. Lastly, the study determined how my practice was transformed through facilitating Whole Brain® hybrid learning.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

In this chapter I present an overview of the various constructs that form part of the discourse on creating an innovative Whole Brain[®] hybrid classroom. It is a construct based on the literature on Whole Brain[®] thinking and hybrid learning. Scholars of Whole Brain[®] thinking such as (De Boer et al., 2013; Herrmann, 1995; McLachlan, 2021; Smit, 2020; Wium et al., 2017; Wolken, 2017) were studied. Scholars of hybrid modes of learning such as (Barker, 2015; Chen & Chiou, 2014; Gnaur et al. , 2020; López-Pérez et al., 2011; Reay, 2001; Rooney, 2003; Sands, 2002; Voci & Young, 2001; Ward & LaBranche, 2003) were consulted. As it was the first time that the construct *Facilitating Whole Brain[®] hybrid learning* was used in research, it can be claimed that this study marks the coining of the construct.

The literature review focuses on facilitating Whole Brain[®] learning and concentrates on hybrid learning against the background of the South African private higher education landscape. The study was planned to take place in the first semester of 2020. Unfortunately, the COVID-19 pandemic caused a change in the academic year and resulted in the switch from face-to-face facilitating of learning to online synchronous facilitating of learning. Owing to all the changes that had to be made within my teaching practice, I had to re-plan my entire study.

The president of South Africa declared a national state of disaster on 15 March 2020 (Department of Co-Operative Governance and Traditional Affairs, 2020). There was an immediate effect on higher education, as it meant the closure of any educational facility and a number of restrictions applied. Van Schalkwyk (2021) notes that the response of the higher education sector to the pandemic was to suspend academic activities after the national state of disaster had been declared. All campuses were closed and the sector had to adjust to continuing learning online. Landa et al. (2021) state that educational emergencies emerged. The main problem was access to the internet and technological resources. In the higher education sector there seemed to be a gap for lecturers to facilitate online learning successfully as lecturers did not necessarily know how instantly to convert their teaching to online (Gnaur et al., 2020). Landa et al. (2021) state that students reported that they did not have the digital literacy needed for accessing content and online classes. In my specific

context, the main national state of disaster protocol was still followed but because 50% of our facilitating of learning was already taking place online, the transition to full online facilitating of learning was much smoother than expected, but not without challenges. Challenges encountered related to the fact that my students had, had four years of working on our LMS and had some knowledge of online platforms like Zoom but only to a limited extent.

The chapter covers the theoretical framework and explains facilitating Whole Brain[®] learning, including the Whole Brain[®] theory developed by Herrmann (1991) and the Comprehensive Whole Brain[®] Model developed by De Boer et al. (2013). It explores the characteristics of hybrid learning tasks that can be used in a higher education environment, the theoretical framework that was used and the methods of facilitating learning in a hybrid learning environment. Lastly, it explores Whole Brain[®] hybrid learning as an emerging construct as introduced in my study.

2.2 THEORETICAL FRAMEWORK

This section explicates the theoretical framework of the study. Firstly, the concept of constructivism including applicable principles is discussed. Secondly, constructivism as a theory and its application to the study is outlined.

Constructivism refers to a theory of knowing where the individual constructs new knowledge based on their current and past experience of a particular subject or concept (Brandon & All, 2010; Gash, 2014; Jia, 2010; Taber, 2019). This view might negate the fact that, as human beings, we influence one another. Constructing knowledge is dependent on the discourse of other scholars and studying literature.

According to Taber (2019), constructivism in education can be divided into two principles. The first is that knowledge is not received passively but that a participant actively builds new knowledge by making meaning of relevant content and experience. The second principle implies that cognition is adaptable. Content is organised within the participant in the meaning-making experiential world. Fosnot (1996) defines constructivism as an interpretive or building process with active interaction with the physical and social world. Brandon and All (2010) suggest that constructivism is an active process where students construct meaning – creating new constructs – based on their current or past knowledge. I agree with Taber (2019) and Brandon et al. (2010) that constructivism is an active process of

constructing new meaning by actively engaging with content or relying on current or past knowledge to construct meaning. However, what is negated is the fact that knowledge or content is complemented by experience and practical skills.

2.2.1 Social constructivism

Amineh and Asl (2015) describe social constructivism as a sociology and communication theory that explains how knowledge is constructed and understanding of the world is developed by a joint effort by different individuals. Kim (2001) suggests that social constructivism is based on three assumptions. Firstly, the assumption has to do with reality. Social constructivists believe that reality can be constructed through human activity only. The second assumption is that knowledge is a human product; individuals create meaning by interacting with one another in their current environment. The third assumption has to do with learning; social constructivists view learning as a social process and learning can occur only if individuals are socially engaged.

I agree with the social constructivist, Vygotsky who states that construction of knowledge can take place only through social interaction. Vygotsky explains that social learning precedes development. For Vygotsky (cited by Smit, 2020) the zone of proximal development is a space between the actual development and levels of potential development and is influenced by participants collaborating with peers that have the same capabilities.

2.3 THE HIGHER EDUCATION SECTOR IN SOUTH AFRICA

This section provides an overview of the global higher education sector. The literature review focuses on private higher education in South Africa – the distinct place where the private higher education institution where the study was conducted resides.

Förster (2021) estimates that there are over 9 800 registered higher education institutions in 209 countries worldwide, including South Africa. These higher education institutions include universities that offer undergraduate and postgraduate degrees, colleges that offer undergraduate degrees and diplomas and other higher education institutions that provide technical and vocational education and training.

During the apartheid era in South Africa, 36 higher education institutions existed, including ten historically disadvantaged universities and seven historically disadvantaged technikons designated for the use of African, Coloured and Indian South Africans. In addition, ten historically advantaged universities and seven historically advantaged technikons were established for the exclusive development of white South Africans (Bunting, 2006). The Higher Education Act was implemented in 1997 to provide a unified and nationally planned higher education system (Department of Higher Education and Training, 2011). The current South African higher education sector houses three types of higher education institution, namely universities, private higher education institutions and TVET colleges (technical and vocational education and training). Universities offer undergraduate and postgraduate education, private higher education institutions offer undergraduate and postgraduate education and TVET colleges present vocational and occupational courses to equip students with academic knowledge and practical experience to prepare them for the workplace (Smit, 2017).

The number of private higher education institutions in South Africa is increasing as the demographics of students have changed post-apartheid (Nukunah et al., 2019). In a study by West (2020) it was found that ethnocentrism may also play a role in students' decision to attend a certain private higher education institution. Some of the students highlighted the fact that they preferred a certain student population, language, background and religion that was the same as their own. West's study was done at the same private higher education institution where I conducted my study.

This private higher education institution can be characterised as a low- to middle-income teacher education institution in an urban residential area in South Africa that uses Afrikaans, one of the official languages of South Africa, as the language of instruction. The institution is characterised by Reformed Christian teacher education (West, 2020).

In the next section, I discuss the Whole Brain[®] Model and how I incorporated it in my educational setting.

2.4 THE WHOLE BRAIN® MODEL

Over the past four decades a few theories about thinking or learning styles have been suggested by scholars. Kolb (cited by Raschick et al., 1998) suggests that there are four types of thinking:

Accommodator: Individuals that are people-orientated and learn through trial and error.

Diverger: People that use information they receive from their senses and feelings from experiences.

Converger: Practical ideas and application are characteristic of this type of thinkers.

Assimilator: Abstract thinking is typical of such individuals.

According to Riding (cited by Zhang & Sternberg, 2002) a person has the following cognitive style dimensions:

Verbal-imagery dimension: Whether a person is more likely to portray information vocally or visually when they are thinking.

WHO list analytic dimension: Determinant of a person's tendency to digest information in wholes or parts.

Biggs (1987), Entwistle (1981) and Marton (1976) suggest that students' actions shape their learning; learning is about what they do, not what we as lecturers do. Zhang and Sternberg (2002) suggest that people each has preferred ways of thinking, performing tasks using their skills, and going about particular tasks. All these scholars have described teaching and learning differently but it comes down to the same thing: Every individual has a preference when it comes to teaching and learning. They agree that a thinking style is indicative of how individuals process information or solve problems (Belousova & Pishchik, 2015). However, they disagree on how to categorise thinking styles. Harrison and Bramson (1982) regard thinking styles as a system of intelligence defined by each individual's virtues and characteristics. Sternberg (1997) defines thinking styles as an individual's existing abilities, which are then used to learn or solve problems.

Herrmann (1996) researched for approximately 30 years how the brain develops from birth. He soon discovered that the brain has no thinking preference at birth but that thinking preferences develop as the brain matures and are influenced by a person's experiences (Herrmann, 1999). Herrmann then developed a theory

explaining how each individual has a preference for specific modes of thinking. Herrmann explains that each individual has a dominant hand and foot and argues that if a person has a dominant side, each individual will also have dominance in the brain. Therefore, brain dominance influences individuals' thinking (Herrmann, 1999). After further researching thinking preferences, Herrmann developed a way to measure the respective thinking preferences of individuals and how to determine to what degree an individual's thinking preferences influence how they prefer to think, learn, create, solve problems and communicate. Herrmann developed the Whole Brain® Model to explain individual thinking preferences (Herrmann, 1999).

Herrmann divided the human brain into four quadrants, as explained by Hughes et al. (2017). The Whole Brain® Model is a metaphoric representation of the brain. Figure 2.1 below is a simple visual representation of Herrmann's Whole Brain® Model.

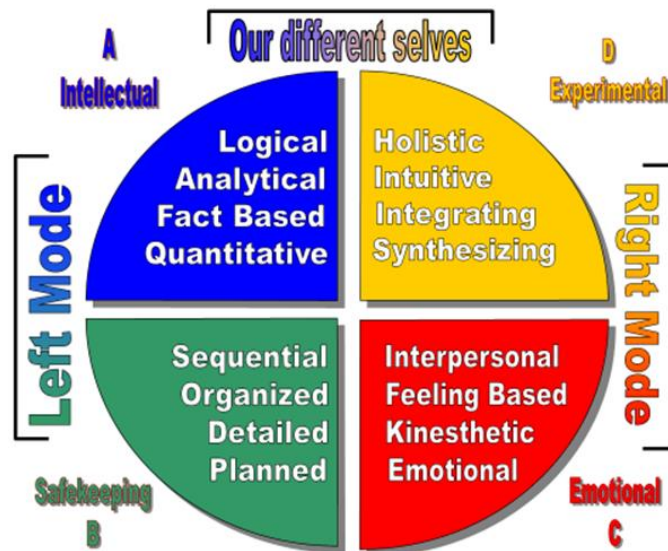


Figure 2.1: The Whole Brain® Model (Fringe, 2013)

On the upper left, Quadrant A represents factual, rational, logical, analytical and critical thinking. Quadrant B on the lower left represents organised, planned and controlled thinking. Quadrant C on the lower right represents intuitive and symbolic thinking while being people-orientated. Quadrant D on the upper right represents creativity and innovation.

For a lecturer, the main objective should be to activate individual students' thinking preferences as indicated in the Whole Brain® Model. This can be achieved by using respective approaches to facilitating learning and by creating an environment that will be conducive to positive and quality learning opportunities. This can be achieved

by using the principles of Whole Brain[®] thinking in one's teaching practice and are what I experimented with in the design and offering of hybrid learning opportunities.

Herrmann (1996) suggests that a student's thinking preferences are determined by their brain dominance across the four quadrants. The Whole Brain[®] Model assumes that a person's learning preferences are not fixed but can be tapped into to allow one to learn more holistically by activating more than one quadrant. Herrmann (1996) and Coffield cited by (Hughes et al., 2017) explain that for learning to be effective, a balance between the four quadrants is required. Herrmann further discovered that individuals do not have a single thinking preference only but can have a thinking preference in one or more quadrant. This led him to discover the respective types of thinking preference where one or more quadrants are dominant. Some examples of dominance discussed in more detail in the following paragraph are single dominant, double dominant and triple dominant.

As Herrmann's (1996) research on brain dominance grew, he could use the results to determine whether the participants in his study had either a single, double, triple or quadruple dominant profile. I would like to reiterate the fact that the theory is about thinking preferences and not abilities. And no preference can be enacted in isolation. One quadrant might be dominant, but some clusters included in the other quadrants might come to the fore depending on the nature of the task at hand. This type of person usually does not have much internal conflict but may struggle with tasks that require their non-dominant quadrants. For individuals with double dominant profiles (Figure 2.3) the two quadrants dominant can complement or hinder each other, which can cause internal conflict when a person is making decisions. Triple dominant profiles (Figure 2.4) mean that for an individual there is one quadrant that is not their primary quadrant. This type of person may find decision-making difficult because of the many alternatives that are possible. When a participant has a quadruple dominant profile, the person uses all four quadrants in every situation. This type of person can switch between quadrants, whatever the situation requires (De Boer et al., 2013).

Figure 2.2 explains how to assess an individual's degree of preference for a particular way of thinking. The letters A, B, C, and D stand for the several quadrants that were described earlier. The circles within circles depict the degree to which a

person prefers particular ways of thinking. The preference increases and decreases, depending on how close the end points are to the perimeter.

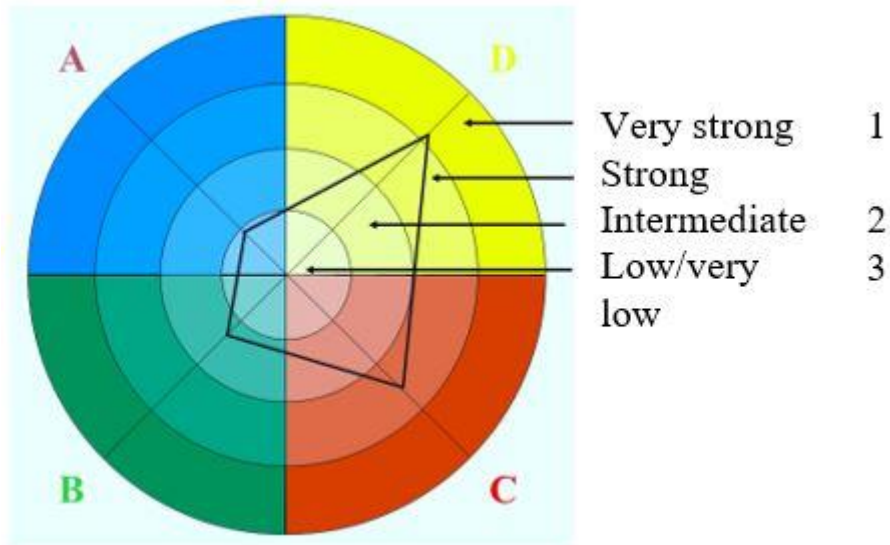


Figure 2.2: Determining thinking preferences (Du Toit, 2019)

The two circles closest to the edge are used to signify when a person has a very strong or strong preference for a particular quadrant as their primary choice. The second inner circle denotes a secondary or intermediate option. The inner circle or tertiary choice, is closest to the centre when the person's choice is low or very low. A person's tertiary preference can even reflect their dislike of the styles of thought associated with a particular quadrant. A major option is represented by the numeral 1, an intermediate option by 2, and a low or very low (tertiary) option by 3. When these numbers are used in that order, such as 3>2>1>1, it denotes a preference code. According to this figure, the person who fits this profile has a tertiary preference for Quadrant A and a secondary preference for Quadrant B, represented by the number 2, and a strong desire for Quadrants C and D, represented by the number 1. The letters of the quadrants will be arranged in the following order: C>D>B>A. Such a profile is described as being double dominant if it has two first choices (primary).

Respective sorts of profile are distinguished based on preference codes. The most typical profiles are double dominant. Double dominance refers to the preference for two quadrants above other quadrants that can be secondary or tertiary options. It is possible that the top three quadrants are decided upon. The profile in this instance is triple dominant. Quadruple profiles, in which each quadrant is selected as the top preference, are uncommon. Below are some examples of profiles with various

preference codes. Firstly the double dominant profile (Figure 2.3) and secondly the triple dominant profile (Figure 2.4).

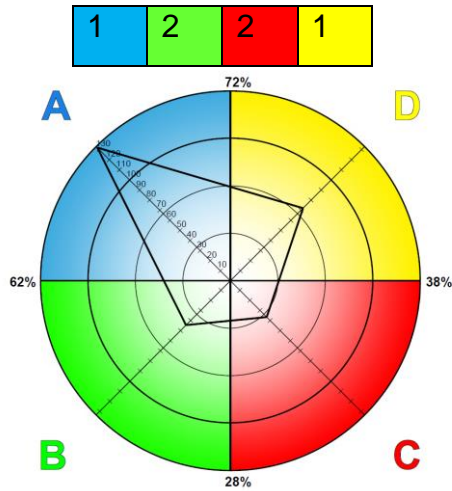


Figure 2.3: HBDI® double dominant sample profile

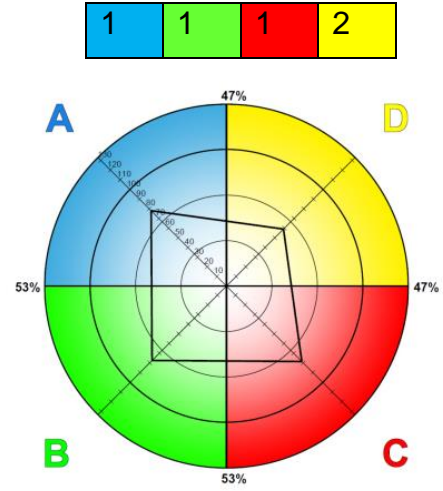


Figure 2.4: HBDI® triple dominant sample profile

*I acknowledge that the, four-quadrant graphic and Whole Brain® are registered trademarks of Herrmann Global. This statement applies to all elements and visual representations that may be connected with the Herrmann Global Declaration that was upheld during the collection of information, activities within the parameters of the study and its reporting.

2.5 COMPREHENSIVE WHOLE BRAIN® MODEL

De Boer et al. (2013) constructed the Comprehensive Whole Brain® Model from the Whole Brain® Model designed by Herrmann (1996). According to De Boer et al. (2013), the original Whole Brain® Model of Herrmann (1991) was extended to include the various ways in which learning can be facilitated to achieve Whole Brain® learning as represented in Figure 2.5.

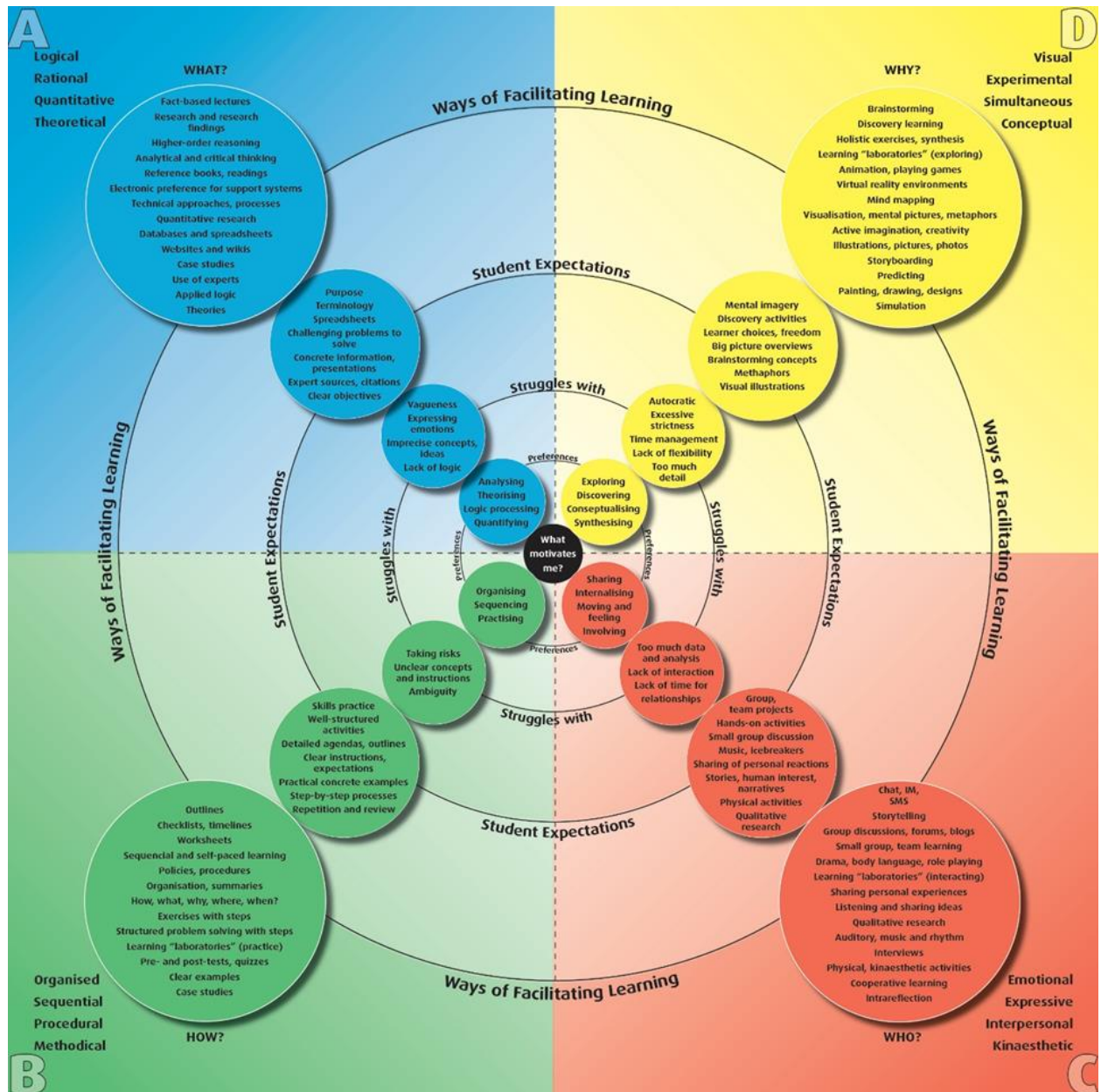


Figure 2.5: Comprehensive Whole Brain® Model (De Boer et al., 2015)

This model indicates respective approaches to facilitating learning that can be used to activate respective thinking preferences. It also describes what students may struggle with if the approaches to facilitating learning are not aligned with their dominant thinking preferences; it also indicates what students expect from the lecturer. The model is discussed in more detail below.

The first aspect that the authors wanted to extend on the original Herrmann (1996) model was to consider the question, *What motivates students to learn?* The core focus of the comprehensive Whole Brain Model[®] is on ways of facilitating learning so that all thinking preferences are activated. How the model is set out is that in the centre of the model there is a circle that is a replication of the Whole Brain[®] Model. The second circle illustrates what students struggle with if they have a certain dominant thinking preference; this is described for each of the quadrants. The third circle explores students' expectations when learning is facilitated. This is also explained for each of the four quadrants. The fourth and final circle illustrates ways in which facilitating learning takes place (De Boer et al., 2013).

In Figure 2.6, which is a screenshot of one section of the Comprehensive Whole Brain[®] Model, the top left quadrant or Quadrant A, can be seen.

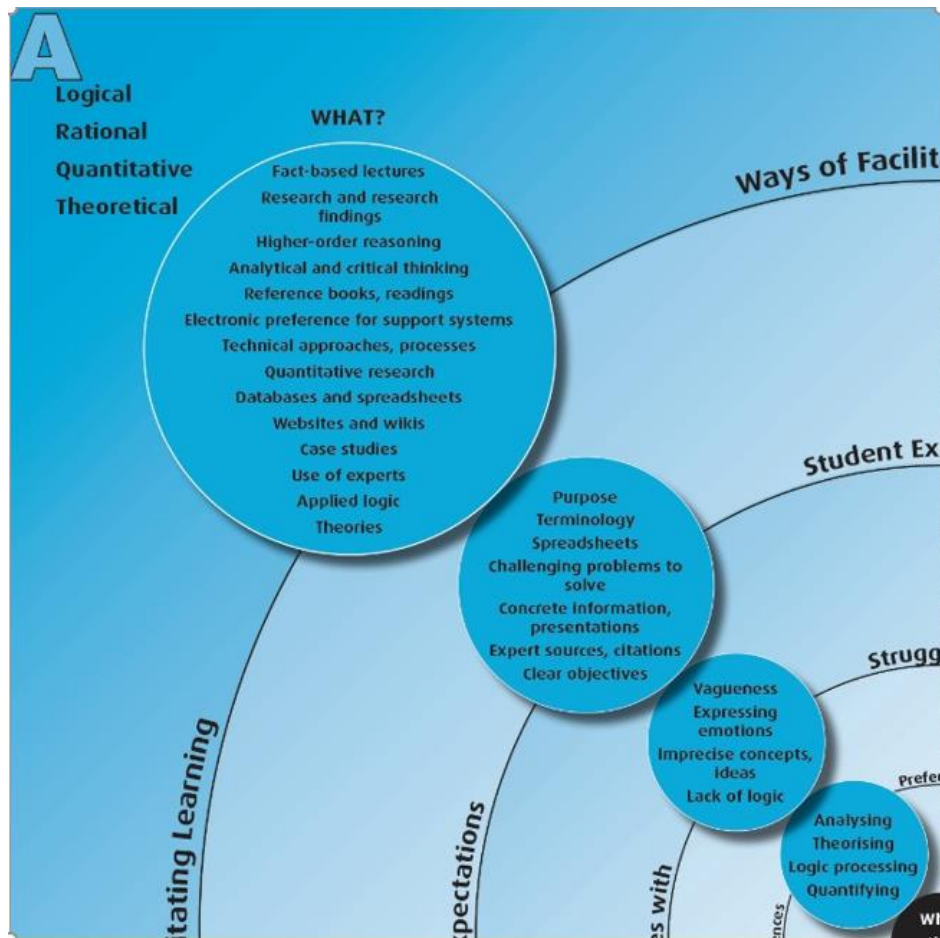


Figure 2.6: Quadrant A of the Comprehensive Whole Brain[®] Model (De Boer et al., 2015)

A brief explanation of Figure 2.6 is offered next. Starting with the second circle, students with preferences for modes of thinking that are aligned with Quadrant A struggle to express their emotions and to understand when something is vague or

not logical. In the third circle Quadrant A students expect a clear purpose in any learning opportunity they attend and they prefer learning experiences that are focused on solving problems, working with factual information and they expect working with resources. The fourth circle indicates that facilitating learning and the learning experience must focus on relevant theories and facts that are aligned with the thinking preferences of Quadrant A.

Figure 2.7 is a screenshot of one section of the Comprehensive Whole Brain® Model in which the bottom left quadrant or Quadrant B can be seen.

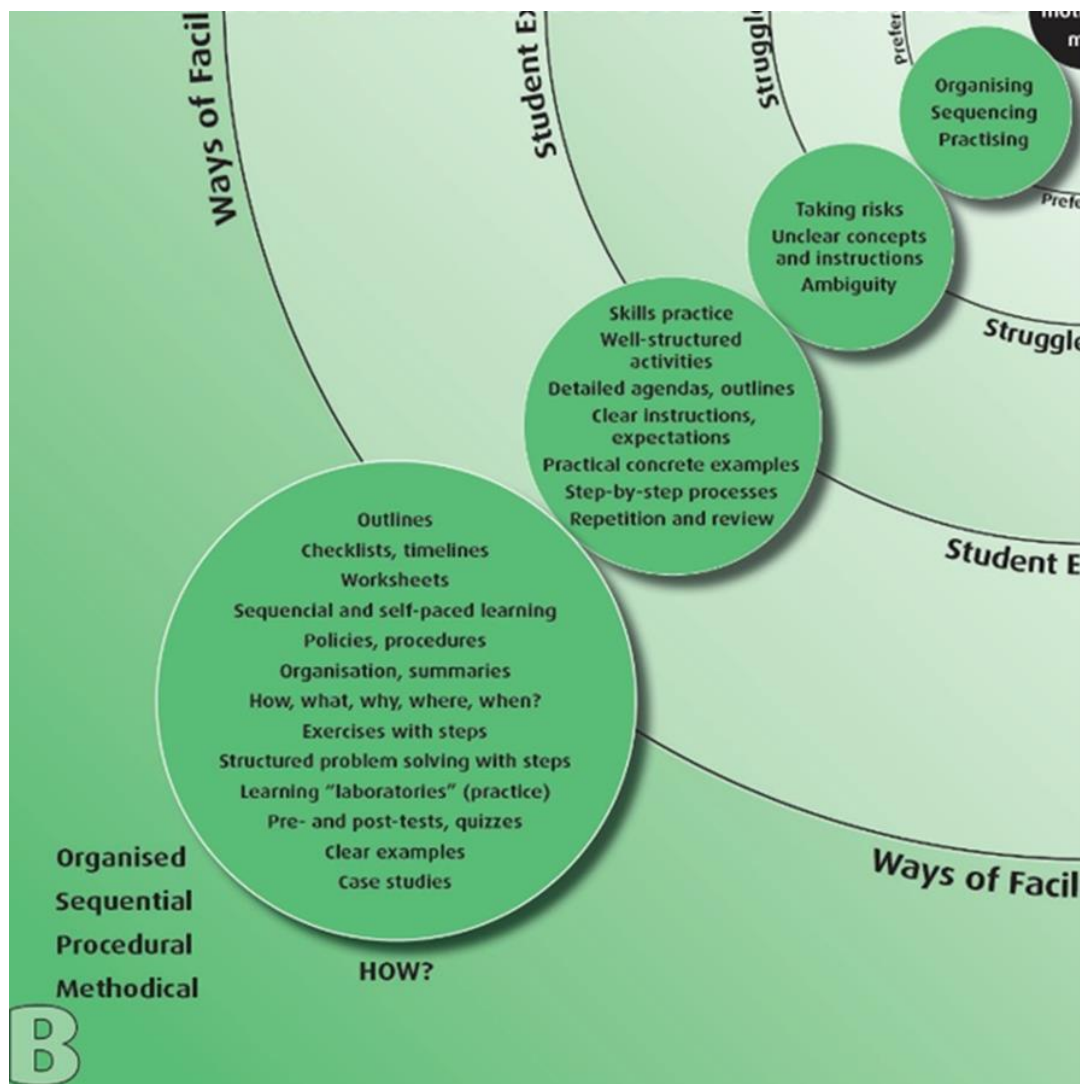


Figure 2.7: Quadrant B of the Comprehensive Whole Brain® Model (De Boer et al., 2015)

A brief explanation of Figure 2.7 follows. Starting with the second circle, students with a Quadrant B preference struggle with learning experiences where explicit instruction is not given. In the third circle students with a Quadrant B preference expect learning experiences to practise new skills or knowledge that they have

acquired and complete tasks that are well structured and can be followed and executed step by step. The fourth circle indicates the way in which learning is facilitated and that the learning experience must. Facilitating of learning must accommodate Quadrant B thinkers by, for example, making use of checklists or tasks that are learning experiences during which students construct new knowledge step by step.

Figure 2.8, which is a screenshot of one section of the Comprehensive Whole Brain® Model, shows the bottom left quadrant, Quadrant C.

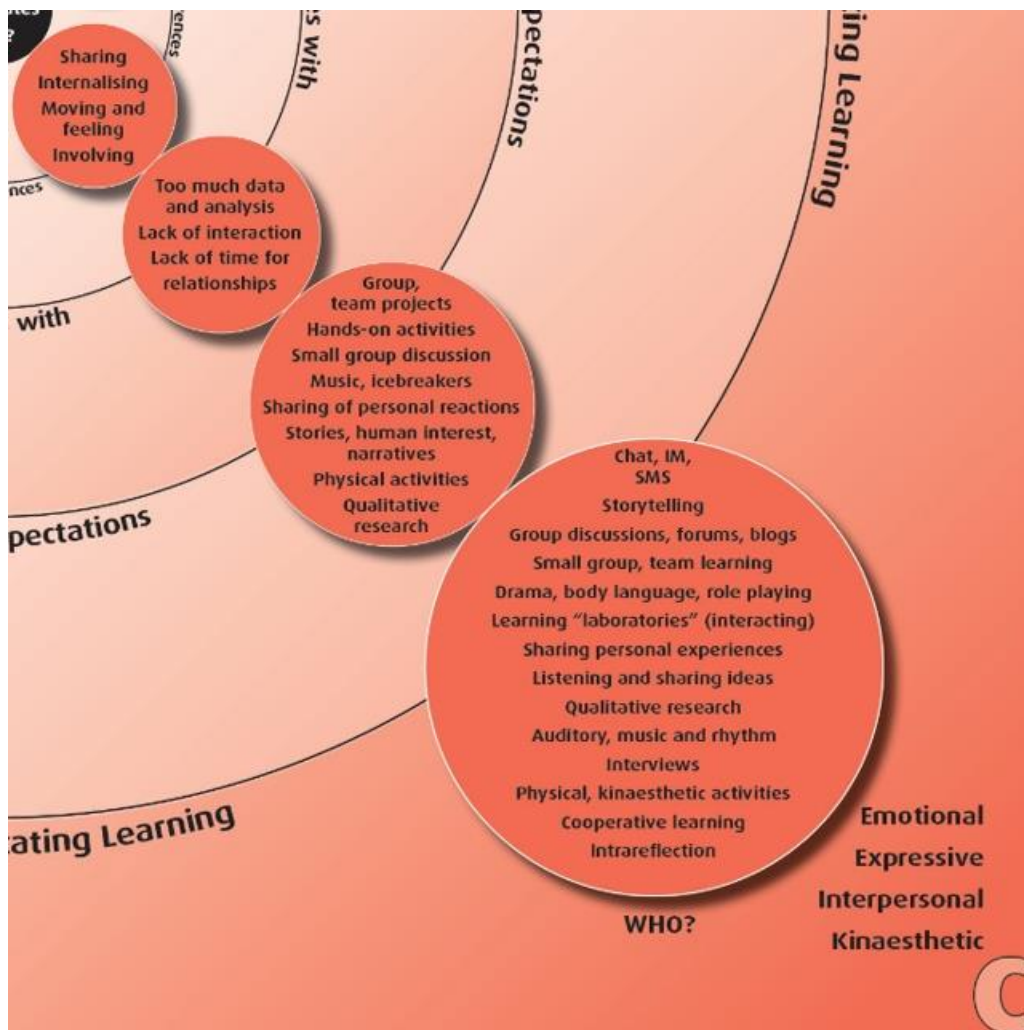


Figure 2.8: Quadrant C of the Comprehensive Whole Brain® Model (De Boer et al., 2015)

In brief Figure 2.8 can be explained as follows: Starting with the second circle, students with a Quadrant C preference struggle dealing with too much information or data to be analysed to complete the task at hand, struggle with learning experiences where explicit instruction is given. In the third circle students with a

preference for Quadrant C prefer group work and class discussions to engage with their fellow students and share personal experiences. The fourth circle indicates that the way in which learning is facilitated and the learning experience of students with a preference for Quadrant C must include any discussion group or class, or role-play, for example.

Figure 2.9, which is a screenshot of one section of the Comprehensive Whole Brain® Model, shows the top left quadrant or Quadrant D.

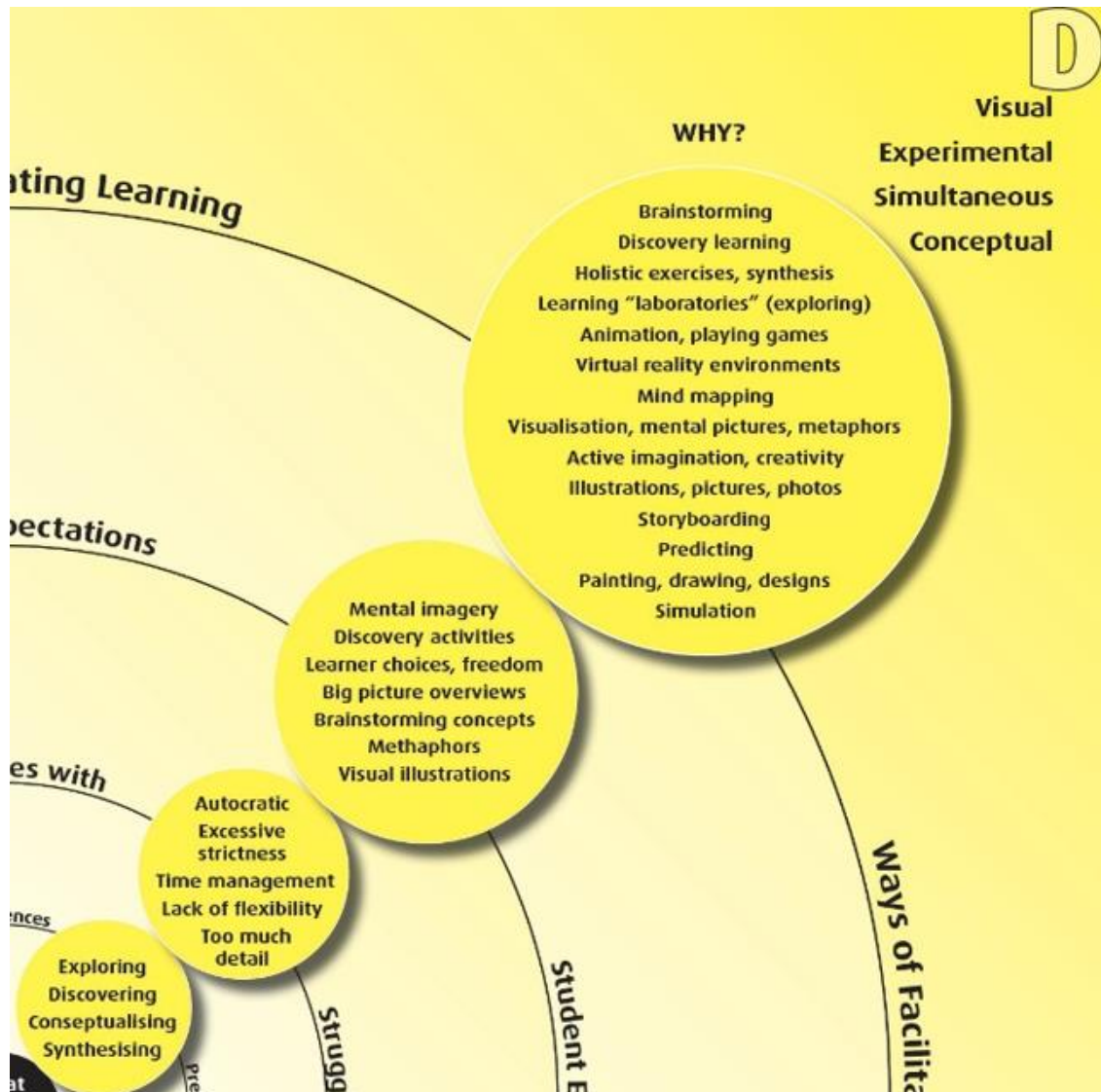


Figure 2.9: Quadrant D of the Comprehensive Whole Brain® Model (De Boer et al., 2015)

A brief explanation of Figure 2.9 follows: Starting with the second circle, students with a preference for Quadrant D struggle with time frames and time management. In the third circle students with a preference for Quadrant D thinking enjoy exploring and discovering new content, synthesising, new possibilities and visual illustrations.

The fourth circle indicates the way in which learning is facilitated and that the learning activities of Quadrant D students can include simulations and field trips where students can make sense of or discover information by making use of brainstorming, gamification, storyboarding and more.

In the next section, the focus is on how to facilitate Whole Brain[®] learning.

2.6 FACILITATING WHOLE BRAIN[®] LEARNING

According to De Boer et al. (2001) facilitating Whole Brain[®] learning can be defined as an approach to learning where the facilitator makes use of Whole Brain[®] learning tasks to enable students to learn and think in a holistic fashion. Facilitating Whole Brain[®] learning may include gamification, podcasts, online collaboration, group work, presentations and many more. Biffle (2013) explains that this way of learning can be used in any learning environment. Facilitating learning in a Whole Brain[®] manner can be incorporated in a face-to-face or online environment to improve the quality of learning *per se*. By ensuring that the methods of facilitating learning are of a high quality the facilitator can create a learning task that will activate the respective thinking preferences of students, resulting in their having a positive learning experience (De Boer et al., 2001).

De Boer et al. (2013) explain that when facilitating learning in a Whole Brain[®] way the main objective is to improve students' motivation, engagement and learning by using two-way communication between the lecturer and the student. In this study, approaches to facilitating Whole Brain[®] learning were used during the respective cycles of the action research process. An infographic was implemented to introduce the students to the learning opportunity. As a continuation of this process, online collaboration between students during Zoom meetings was arranged and peer assessment was done after the students had completed the Whole Brain[®] hybrid learning task. The implementation of the principles of Whole Brain[®] thinking during the action research process is discussed in more detail in Chapter 3. In the following section clarification is provided regarding various aspects of this approach.

2.7 FACILITATING HYBRID LEARNING IN MY PRIVATE HIGHER EDUCATION CONTEXT

2.7.1 Definition and clarification

The definition according to Osorio-Gomez and Duarte (2012) of hybrid learning relates to the use of a combination of different approaches to facilitating learning used synchronously or asynchronously. O'Byrne and Pytash (2015) state that the terms blended learning, hybrid learning and mixed-modes learning are used interchangeably in current research. Blended learning can be defined as a combination of facilitating learning in a face-to-face mode and information communication technology-mediated learning (López-Pérez et al., 2011; Reay, 2001; Rooney, 2003; Sands, 2002; Voci & Young, 2001; Ward & LaBranche, 2003). My personal preference from practical experience is to use facilitating learning as it is a construct found in recent literature, such as in the work of Chen and Chiou, 2014; Gnaur et al., 2020; Kniffin and Greenleaf, 2023; Olivier, 2014; Osorio-Gomez and Duarte, 2012. During the hybrid learning process, facilitating learning is regarded as a continuous integrated process where face-to-face or online learning cannot occur separately (O'Byrne & Pytash, 2015).

2.7.2 Infrastructure for facilitating online learning

Facilitating learning by means of employing hybrid approaches cannot occur without the appropriate infrastructure, including a virtual learning platform, online learning software, internet connection, presentation software and administrative support at a higher education institution – both public and private. Olapiriyakul and Scher (2006) state that for facilitating online learning to occur, the higher education institution must have the following in place: An established network infrastructure taking into account the capacity, speed, firewall and anti-spoofing technology security of the LMS.

McHaney (2011) explains that the most commonly used virtual learning management systems are Blackboard, Axio, Canvas and Moodle. Canvas and Moodle are open-source learning management systems. Blackboard and Axio have been designed for commercial use. McHaney (2011) explains that students are widely more tech-savvy with technology and lecturers have to make a mind shift and equip themselves with the necessary knowledge and skills to facilitate learning on the virtual learning platform successfully. In addition McHaney (2011) explains

that a virtual learning platform has the following functions: It serves as a platform where curriculum mapping can be displayed, and is used to communicate with students via the communication facilities that the LMS offers; group management software enables lecturers to divide students into respective groups for the execution of learning tasks. Other tools for facilitating learning that are available are blogs, wikis, Really Simple Syndication (RSS) feeds and 3-D virtual world interfaces.

Moodle is designed to provide lecturers and students with an integrated system that can be personalised for their specific needs. Within my context, needs included collaborating with students, thus needing collaboration software, for example, Zoom that could be embedded into the LMS, submission of assignment making use of the online assignment links, discussion forums where I could communicate with the students using announcements, just to name a few. These tools enable the lecturer to interact with students and facilitate the learning process to engage students in learning. The platform can also embed external tools such as videos (YouTube) where the students and I could record ourselves when executing the skills, and as a collaborative tool for executing learning tasks, for example, using Google.it and feedback tools such as Mentimeter (Moodle, 2018). Moodle (2018) states that the only requirement to use the system is to access a stable internet connection. In the South African context, if the institution is situated in an urban area, a stable internet connection is easier to utilise as there are WIFI hotspots in most urban areas; in the rural areas of South Africa internet connection is not as stable. When students do not have access to WIFI they can purchase mobile data, which is expensive in South Africa and can hinder students to access the LMS. In my practical experience of data collection, connection problems were experienced during online synchronous sessions. The challenge relating to internet connection alluded to above was a concern as some students did not have access to a stable internet connection at home. The student participants could access the system from anywhere during the COVID-19 pandemic, but some students relied on the campus facilities to be able to access the LMS. At the private higher education institution where I am employed, it is a prerequisite that all students must have access to a computer and an adequate internet connection. However, it is important to be mindful of possible difficulties in this regard; the COVID-19 regulations did have a significant impact on movement, on the use of public spaces, etc. (Department of Co-Operative Governance and Traditional Affairs, 2020) and could not be controlled. The fact that the students

could not make use of the campus facilities resulted in some students not being able to attend the live discussion sessions.

2.7.3 Implementing approaches to hybrid learning

At the beginning of the 1980s, the use of technology in the education sector became more prominent due to a wide range of technology available to educators (Ng'ambi et al., 2016). According to Olapiriyakul and Scher (2006), technology was predominantly used to support teaching and included learning material such as a standard whiteboard used in face-to-face teaching as well as more sophisticated digital technology that may consist of online collaboration, e.g. video conferencing.

Since 2005, as mobile technologies have advanced and wireless internet has become omnipresent, higher education has moved its emphasis to online active learning and collaboration made possible by social computing tools (Ng'ambi et al., 2016). Because obtaining a tertiary degree now requires online study, the usage of technology in higher education has become vital. According to Anastasiades (2009), the following steps are needed when developing a hybrid learning approach that include using digital entities: The use of current digital entities – selecting the appropriate digital entities, uploading relevant content, and assessing the effectiveness of the digital entities selected. Each of these steps is briefly discussed next.

Rushby and Surry (2016) define digital entities as any digital resources that can be used to enhance or support learning. Firstly, digital entities should be selected that will meet the pedagogical requirements of the lecturer. Secondly, the lecturer should upload current content into digital entities, for example, voice and multimedia entities that include videos, voiceovers, animations, recordings, etc. Lastly, the lecturer needs to assess the effectiveness of the chosen digital entities.

Olapiriyakul and Scher (2006) point out that most lecturers use PowerPoint or Google slides presentation software to create graphical representations of content covered in a specific module during synchronous classes. For asynchronous online classes, digital video instruction, animations, computer-based tutorials, simulations, games and course websites are used as these promote student-centred learning. These types of technology can be designed either by the students or by the lecturers when virtual classrooms are available.

A hybrid classroom was established by the higher education institution where I am employed; Video conferencing was used to replicate the synchronous face-to-face classes and uploaded them to the LMS. Other applications that were used included videos made by the students and me. During two of the Whole Brain® learning tasks students made video recordings of themselves treating possible injuries that can occur during the presentation of gymnastics. The other video that was recorded was when the students had to execute the basic four floor elements including the forward roll, backward roll, cartwheel and handstand. I also recorded a video demonstrating the execution of the skills to help the students to comprehend how to do it correctly.

2.7.4 Advantages and disadvantages of a hybrid learning practice

Barker (2015) regards it as essential to observe what and how individual students may benefit from hybrid learning and further indicates that a hybrid learning approach enables students who cannot commute to a higher education institution to still be able to participate in class activities even if they are online. Students, who were not full-time students or had different circumstances, preferred this mode of learning as they managed their learning online. This was similar to what Johnson (2015) found: In his study, students included, for example, single parents, international students, young adults, adults and students with learning disabilities.

In my context Aros does not enrol international students. In some instances students with learning needs – as it is referred to in the South African contexts – are allowed to register. However, in my teaching practice, I may have encountered students with special needs including physical, emotional, behavioural, learning and social needs. If such students were present in my course their special need was not enclosed to me as we have a department at the Higher Education Institution that supports these students.

During the COVID-19 pandemic students had to rely on a hybrid learning classroom as individuals' movements were limited and public gatherings were not permitted. In South Africa, higher education institutions were compelled to continue tuition online (Landa et al., 2021). Gould's (2010) reference to hybrid learning is apt when he states that the circumstances of students may have benefited from hybrid learning as they may have had more flexibility with the way in which their learning was facilitated but still had the sole responsibility to complete the coursework.

There are also disadvantages to hybrid learning. Shimkovich, Makhmutova, Ivanova, and Urunova (2022) suggest the following disadvantages to hybrid learning: The facilitator has to spend a significant amount of time to develop and integrate resources that are going to be used during hybrid learning; another disadvantage is that the facilitator may not have the technical skills to successfully implement a hybrid learning approach. It is also possible that the LMS does not support hybrid learning activities. Dung (2020) suggests that during hybrid learning online synchronous session interaction can be hindered by the fact that students do not want to turn on their cameras, which makes communication difficult. The methods of facilitating and assessing learning in hybrid environments are discussed next.

2.7.5 Methods of facilitating and assessing learning in hybrid environments

According to Pan et al. (2018), many respective approaches to teaching exist in the higher education environment. It is important for the facilitator to choose the teaching approach that best suits their individual circumstances. I used a flipped-classroom approach during events that traditionally occurred as face-to-face classes now occurring online. However, the online synchronous sessions were still utilised using the video conferencing software Zoom.

By using this approach, instruction was given online to students on what activity they had to have prepared before the commencing of the synchronous class. During the online synchronous session, the students presented what they had prepared and shared it with their classmates. The following applications were used before and during the online synchronous session: Coggle.it for the creation of mind maps, recording app on mobile devices for recording videos, Mentimeter and Nearpod for the purpose of peer assessment.

I attempted to merge my hybrid teaching practice, hybrid learning and Whole Brain[®] learning in an innovative fashion. I opted to facilitate and assess learning in a hybrid mode, following both synchronous and asynchronous approaches. I thus invented a new approach to facilitating learning called facilitating Whole Brain[®] hybrid learning that I implemented in my practice.

Pretorius (2017) suggests that in a 21st century classroom in higher education, lecturers must use alternative teaching strategies to keep students engaged in the classroom and to involve students in the learning process so that active learning can take place. Olapiriyakul and Scher (2006) agree on this view that different learning preferences should be considered during the process of facilitating learning. Both Olapiriyakul and Scher (2006) and Chen and Chiou (2014) identify modes of learning to be present during hybrid learning, categorising them into four dimensions. In the following paragraph a comparison is made between the views of Olapiriyakul and Scher (2006) and Herrmann (1991) on learning preferences.

The first dimension Olapiriyakul and Scher (2006) distinguish is described as Intuitive or Sensing, which can be compared to Quadrant B, as represented by Herrmann (1996). A student can be described as someone who prefers to deal with facts, practical situations or physical sensations. They also prefer theoretical, abstract thinking, imaginative and innovative situations that can be compared to Quadrant A as represented by Herrmann (1991) model. Olapiriyakul and Scher (2006) further suggest that to create hybrid learning, the facilitator can use a case study or experiment during the face-to-face classes while the theory will be done online and vice versa. Experimenting is typical of Quadrant D thinking.

The second dimension is described as Visual, which compares well with Quadrant D or Verbal compared with Quadrant C, as referred to by Herrmann (1996). This dimension described by Olapiriyakul and Scher (2006) implies that a student with this preference can be described as someone who prefers visual materials such as pictures, diagrams, flow charts (Quadrant D), explanations and expression through written or oral feedback (Quadrant C). Hybrid teaching activities can include verbal descriptions, handouts, and the use of visual and verbal materials in person or on the LMS.

The third dimension is Active or Reflective, which Herrmann (1996) describes as Quadrant C. Quadrant C or active preference students prefer working in groups and trying new things. A Reflective or Quadrant A preference student prefers working alone or in pairs. Olapiriyakul and Scher (2006) are of the view that hybrid learning can be established using a large group activity (30 or more students) during the synchronous face-to-face class and using smaller group – 2 to 4 people –

discussions online or the other way around. Other learning tasks can include online presentations, peer-assessment, storyboarding, etc. (Arkorful & Abaidoo, 2015).

The fourth dimension is Sequential, breaking information into smaller pieces or Global seeing the big picture before breaking it up into smaller pieces, which can be compared with Quadrant B and Quadrant D (Herrmann, 1996). These students learn best when they make use of a step-wise approach. They also give attention to detail. The hybrid teaching activities that Olapiriyakul and Scher (2006) suggest are online discussions where participants can argue for or against their classmates' ideas.

The purpose of this study was to incorporate facilitating Whole Brain[®] learning and hybrid learning in teaching practices. I also describe how Whole Brain[®] and hybrid learning can be merged – creating a new construct and coining it as facilitating Whole Brain[®] hybrid learning.

The Whole Brain[®] hybrid learning approach assisted students in activating all the brain quadrants during the Whole Brain[®] hybrid learning opportunities. The learning process was initiated by asking the students to create an infographic that explains a gymnastic skill with different steps as preparation for the next online discussion session. This activity aimed to activate quadrant B, C and D because steps as well as discussion and brainstorming were involved. Quadrants A and B were activated by a problem-based online learning activity asking students to research possible injuries during gymnastics and to explain steps to treat the injury. As role-playing was used in class, it engaged Quadrant C. Students were expected to make a video (dominantly Quadrant C) to show and explain a gymnastic skill while using Coggle.it presentations and brainstorming during the online synchronous session, which prompted quadrants C and D. In this way, hybrid teaching and the Whole Brain[®] approach were incorporated in my approach to transform my teaching practice.

2.8 PROFESSIONAL LECTURER IDENTITY DEVELOPMENT

2.8.1 Lecturer identity development

Boyd and Harris (2010) suggest that lecturer identity develops over time. Lecturer identity is influenced by the lecturer's experiences, personal characteristics and information that the lecturer gathers. Feather (2010) divides lecturer professional-identity or academic-identity into three sub-categories: Facilitating learning (1),

learning (2) and research (3), which are defined by the author as the use of different teaching approaches to facilitating learning. Research has to do with professional development of the lecturer by doing reading and studying the most recent literature in the lecturer's field of specialisation. Research can also include reflecting on your own practice.

Van Lankveld et al. (2017) identify the following four factors that affect lecturer identity development: (1) The immediate work environment that can be described as lecturer interaction with colleagues and their workplace; (2) the broader context of higher education is the interaction with stakeholders that are involved in higher education, for example, other institutions; (3) the interaction with students; and (4) staff development activities influence the identity of the lecturer. Similarly to what Smit (2020) and McLachlan (2021) respectively refer to as mentor identity and teacher identity, which relate to the school context, I agree that lecturer identity, as applicable to my higher education context, is constantly developing and is influenced by the lecturer's context and experiences. Van Lankveld et al. (2017) explain that lecturer identity can be strengthened by contact with students and staff development programmes. In contrast, the broader context of higher education is described as having a constraining impact.

I consider myself an early-career academic, as I have been working in higher education for six years and putting in all effort to transform practice. The action research conducted was a means to prove this – a scholarly justification for claiming an evidence-based practice. I am developing my lecturer identity by continuing to transform my practice in using a Whole Brain® approach to facilitating hybrid learning. I continually endeavour to transform my teaching practice to be recognised as a researcher and scholar of my specific field of study, and as higher education practitioner.

2.8.2 Online lecturer presence

Yang et al. (2016) define online presence in higher education as a complex construct comprising different dimensions, including social presence, cognitive presence and teaching presence. The dimensions cannot function independently but rather have constant interaction. This interaction between the different dimensions of presence is explained in the framework called the community of

inquiry that states that the different dimensions need to interact so that authentic learning can take place.

Crawford and Persaud (2012) acknowledge that a traditional classroom is still required for a successful online course. I am challenging this view as, during the worldwide pandemic, classes could still continue even if it was in a different fashion and an environment could still be created to mimic the traditional classroom environment. Even though the worldwide pandemic was ongoing, the students were still able to have contact with their peers while following all COVID-19 regulations.

Kornelsen (2006) describes the lecturer's presence as facilitating learning that encourages openness, imbues vitality and sometimes abandons order. Transforming my practice meant that I needed to let go of the traditional way of facilitating learning and to get the students to take the lead. Kornelsen (2006) explains that a lecturer must be enthusiastic about the role of facilitator. To help facilitate a students' construction of knowledge, the lecturer must implement student-centred approaches every time with every interaction. The author then describes three strategies that guarantee a positive teaching presence.

To better their social presence lecturers must be open, showing the students that they are also vulnerable by acknowledging their own imperfections, weaknesses, desires and ambitions to improve their lecturer identity, skills in facilitating learning and to be a role model for students (Yang et al., 2016). My practical experience of own teaching practice showed exactly this. I made a video doing a gymnastic skill myself, not without flaws, but it was easier for the students to relate to me. Examples were used that were not flawless to help them understand that a person must continually reflect on their own practice to become better facilitators of learning. This contributes to bridging the gap between the lecturer and the students on a personal and academic level. The students may feel more comfortable speaking to the lecturer about their shortcomings and weaknesses and ensuring a caring, respecting and trusting classroom environment. Yang et al. (2016) explain that research has shown that when the facilitator does not strictly focus on the module's outcomes only but gives room for the content to unfold, students have a more positive attitude to the learning opportunity.

2.9 CONCLUSION

From the literature review, it can be concluded that the higher education sector has significantly changed because of the COVID-19 pandemic as all of the stakeholders within this sector had to change how they facilitated learning during this *new normal*. It can also be deduced that there is a need for hybrid classrooms where students are responsible for their own learning, as seen during the COVID-19 pandemic. The advantages and disadvantages of a hybrid learning classroom have been highlighted. The Comprehensive Whole Brain[®] theory and the Whole Brain[®] theory's complexity as well as the possibility of combining Whole Brain[®] learning and hybrid learning have been investigated. A new construct known as Whole Brain[®] hybrid learning was explored and reported on, along with its development and potential applications.

CHAPTER 3: RESEARCH DESIGN

3.1 INTRODUCTION

In this chapter, the research design and methods, and related aspects are discussed. Firstly, the research paradigm is addressed. Aspects related to the design and methods that are addressed include data sources, data analysis and ethics considerations as well as limitations to the study.

In the research methods section my role as a researcher is described and the research site and participants are discussed. The last part of the chapter outlines the data collection methods and the data analysis process that were used.

Finally, the action research project I started is discussed.

3.2 ACTION RESEARCH

Mills (2018) describes action research in education as a systematic inquiry conducted by a researcher in an educational environment to collect data on different aspects of the teaching and learning environment to gain insight, develop reflective practice and transform the academic environment. McAteer (2013) agrees that action research is rooted in reflection and helps researchers seek perspectives to generate alternative practical transformations. My definition of action research is the conducting of research while transforming one's own practice.

Mouton (2001) explains that action research is carried out in natural field settings involving participants and is characterised by low control. Schiller et al. (2018) suggest that action research is characterised by empowering participants and the self. Scholars such as McNiff (2013) and Du Toit (2012) assert that action research is emancipatory. Du Toit (2018a) emphasises that one cannot empower someone else. One can only self-empower through a process of professional self-regulated learning. Action research is an open-ended research design. It is flexible and fluid (McNiff & Whitehead, 2002). When using an action research design, McNiff (2016a) notes that facilitators have valuable experiences and professional knowledge to bring to the table by planning learning opportunities to encourage self-regulated learning. I used an action research design to plan learning opportunities for my students, promoting self-regulated learning. The detail of each cycle that formed

part of the action research process is discussed. In each cycle of the action research design, I implemented the principles of facilitating Whole Brain® learning to transform my teaching practice and ensure that I include as many of the different modes of thinking during each learning opportunity.

In the next section, the action research process is discussed.

3.2.1 Action research design

There are three types of research method: qualitative, quantitative and mixed-methods (Joubert et al., 2016). For action research it is no different. Qualitative research uses descriptive approaches to data collection. Quantitative research analyses numerical data, and mixed-methods use both qualitative and quantitative methods of data collection (Mills, 2014). I followed a mixed-methods approach to data collection.

An asset-based approach to action research, opposed to a deficit approach is advocated by (Du Toit, 2018b). An example of assets in action research is the prior knowledge that the students and the facilitator bring to the classroom. A deficit approach, in the context of research, can be described as the assumption of a lack of strengths when it comes to conducting research; and especially within the context of action research when, for example, students do not have prior knowledge on the topic and resources are not available (Norton & Owens, 2013) that might influence the ideas of the practitioner-researcher they might like to experiment with.

An asset-based approach to action research, as described by Du Toit (2018a), was followed. Assets that one can use to one's advantage are capacities, abilities, gifts, skills that every person possesses, social resources and infrastructure. In addition, Whole Brain® teaching and learning as well as using a hybrid approach (Kniffin & Greenleaf, 2023) is seen as an asset (Smit & Du Toit, 2016). The participants had different skill sets: some students were able to perform the basic gymnastics skills, and they also had effective communication skills, being able to contribute constructively to group work, and being skilled in enacting critical thinking and other soft skills. Certain skills relate to digital literacy, creativity and problem-solving. The skills, capabilities and intelligences that the participants already had were prior knowledge of gymnastics, and some of the participants were able to complete the

gymnastics skills. Other assets included the use of technology to create videos, lesson plans and mind maps.

Figure 3.1 visually represents the cyclic nature of the action research conducted.

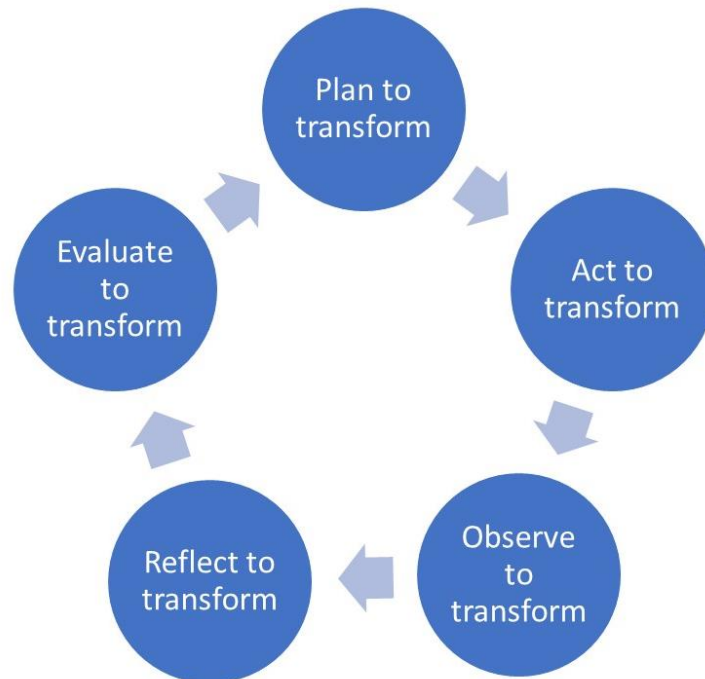


Figure 10: The different steps of each action research cycle that took place during the study

There are four types of mixed-method research: concurrent design, embedded design, explanatory design and exploratory design (Creswell et al., 2014; Creswell & Plano Clark, 2011; Wium & Louw, 2018).

The concurrent mixed-methods approach was used by simultaneously collecting qualitative and quantitative data. Each data set complements the other to strengthen the data types collected to answer the research questions. By using the HBDI® brain profile, feedback questionnaires from the students, a reflective journal, visual data and observations, the data sets could be implemented to reflect on my own practice.

3.2.2 Whole Brain® action research

Whole Brain® action research is an action research design that represents a process followed in a distinct fashion – using the principles of Whole Brain® thinking. The Whole Brain® Model as developed by Herrmann (1995) indicates that every individual has a preference for one or more modes of thinking. This is incorporated

in the action research study. I used a Whole Brain[®] lens to analyse the decisions I made during the various steps of each cycle of the Whole Brain[®] process. Because of the nature of action research, which is a continuous reflection process, I constantly examined my action research journey, specifically during the online synchronous sessions via Zoom, keeping in mind that I needed to accommodate all the thinking preferences of my students. Consequently, before moving forward with a follow-up cycle, I methodologically evaluated my own practice. In the following section I explain the action research process that I followed in more detail.

3.2.3 Whole Brain[®] action research process

Action research is, based on the view of Joubert et al. (2016), a series of interactive cycles, each consisting of planning, acting, observing, reflecting and evaluation – thus, five steps in each cycle within the research spiral. The five steps within a cycle are depicted in Figure 3.1 above.

The action research process I followed developed through four cycles of five steps each, as depicted in Figure 3.2. For the first step of each cycle, a Whole Brain[®] hybrid task was planned that the participants had to execute. Next, the Whole Brain[®] learning tasks were implemented; these included loading the infographic that depicted the Whole Brain[®] hybrid task and the creation of links relating the different educational technology as well as the students completing the Whole Brain[®] learning task.

The observation step took place after an online synchronous session via Zoom. It consisted of using an observation sheet where I watched the recording of the online synchronous session and observed the outcome of the learning task executed during the online session and the quadrants activated during the online synchronous session. After watching the recording, I observed each group's task submitted and determined how well each group had completed the task.

After the learning tasks had been completed, participants' execution of the learning tasks and how the learning was facilitated while they were executing the tasks were evaluated. The reflection step is aligned with Schön (1983) idea of reflecting in action. By means of reflection it could be identified which approaches worked well and what aspects needed attention – with a view to continuously transform my teaching practice. This type of reflection is referred to by Schön (1983) as reflection

after action. The evaluation entailed a closer analysis of what transpired during the cycle. Specific aspects that needed attention were listed and scrutinised in depth. This step included a third type of reflexivity that Schön (1983) calls reflection before action that is done before the next cycle's action is taken. Based on this evaluation, different ways to transform my practice were considered and included in the first step of replanning the next cycle. Next, the action research process followed is explained in detail. Figure 3.2 visually represents the four cycles over four weeks.

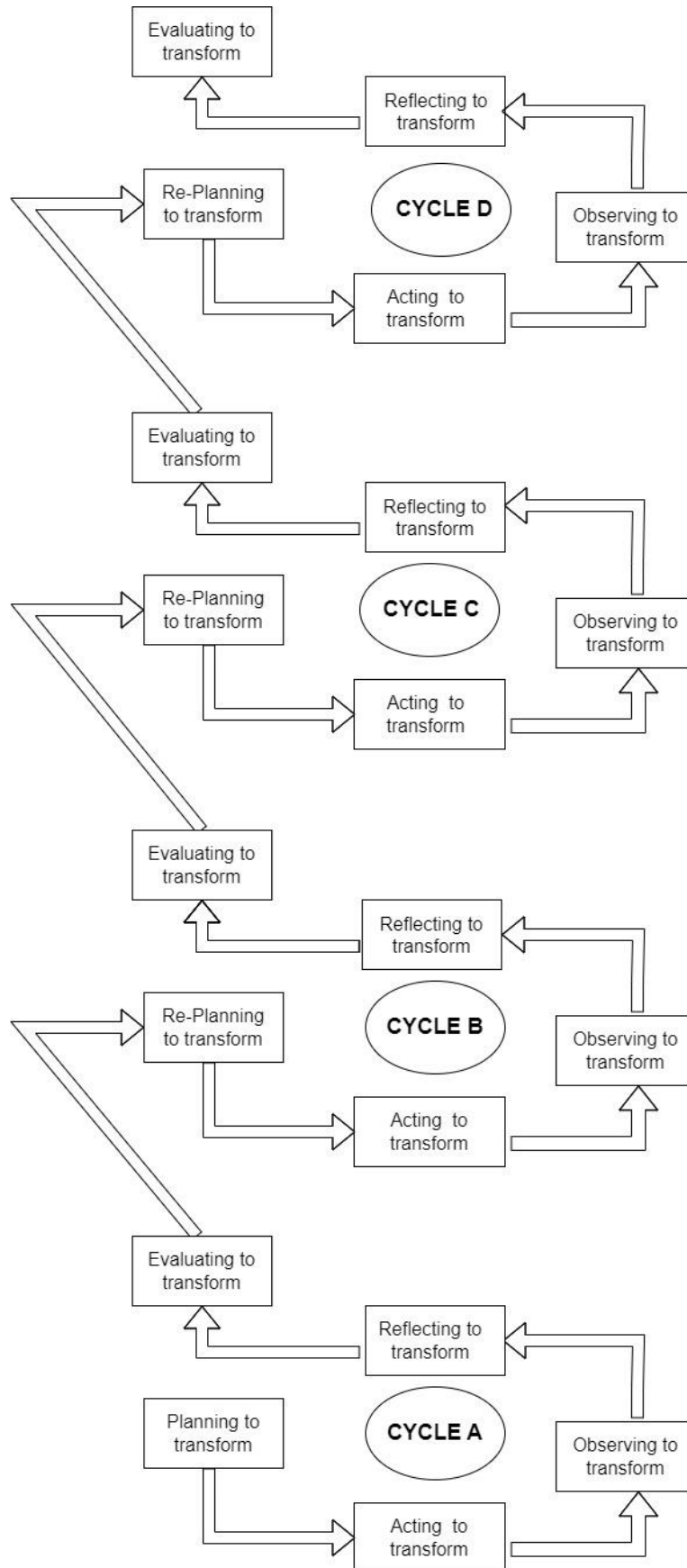


Figure 11: Action research process followed

Click the link for a full-page view of the action research process.

https://drive.google.com/file/d/1pfA1-JtWVY_-sRd7j3YovM4CGiRfJr4/view?usp=drive_link

3.2.4 Implementing the Whole Brain[®] action research process

In this section, I provide detail of the Whole Brain[®] hybrid action research process that was followed. Four consecutive research cycles made up the study. The four cycles are shown graphically in the figure above. The arrows indicate the flow between each of the steps in the cycles. Each of the last steps per cycle has an arrow connected to the preceding step and an arrow connected to the next cycle.

The Whole Brain[®] approach to facilitating hybrid learning was implemented within the four cycles of the action research trajectory. The academic programme context was the Life Skills module that is explained in Chapter 1, mainly focusing on Educational Gymnastics. Educational Gymnastics consists of two study units in the Life Skills module. The learning outcomes for these two units focus on the skills to present Educational Gymnastics successfully to learners in the Intermediate Phase during their Physical Education periods.

3.2.4.1 Action Research Cycles A – D

During Cycle A, the pre-planning mostly involved the creation of links for the online synchronous session as, owing to the COVID-19 pandemic, everything had to be done online. The planning involved the planning of the Whole Brain[®] hybrid learning task that was the creation of a mind map online on the Coggle.it software. I further planned how I was going to implement facilitating Whole Brain[®] hybrid of learning during the online synchronous session. The students created the mind maps and prepared for the online synchronous session.

Cycle B involved the same pre-planning as for Cycle A with the creation of links on different applications as part of preparation for the online synchronous session. I planned the Whole Brain[®] hybrid learning task for Cycle B. Because of the reflective nature of the Whole Brain[®] action research process, I reflected on my practice in Cycle A and transformed it in a continuous fashion. The Whole Brain[®] hybrid learning task entailed that the students had to create a video where they showed how to treat an injury that can occur in gymnastics. I planned how I was going to facilitate Whole Brain[®] hybrid learning during the online synchronous session by means of collaboration and peer-assessment.

Cycle C consisted of the same steps as Cycle A and B and consequently the same pre-planning and planning took place. I again reflected on my practice before I started Cycle C with a view to transforming my practice as the action research progressed. During Cycle C the Whole Brain® hybrid learning task entailed that the students had to make a video where they showed how the four basic floor elements can be broken down into different parts and the students had to demonstrate the execution of the four elements practically as a sequence. I, again, planned how I was going to facilitate the Whole Brain® hybrid learning during the online synchronous session by means of collaboration and peer-assessment.

In Cycle D, the same steps as for Cycle A, B and C were followed. I reflected on my practice as in the other cycles. During Cycle D the Whole Brain® hybrid learning task included the students creating a lesson plan for teaching a Physical Education lesson in the Intermediate Phase. I planned how I was going to facilitate Whole Brain® hybrid learning during the online synchronous session by means of collaboration and peer-assessment.

3.3 DATA COLLECTION METHODS

A mixed-methods research approach was used. Because of the nature of a mixed-methods research approach I collected quantitative and qualitative data. I followed Creswell's (2008) recommendation and integrated, linked and consolidated the data sets.

Because combining quantitative and qualitative research produces more insightful results, I used both quantitative and qualitative methods as (Creswell & Garrett, 2008) propose. By following this approach, I gained insight into facilitating Whole Brain® hybrid learning. And, I gained insight into my own lecturer- identity development in the context of private higher education. My ability to plan for action during each cycle of the action research was made possible by the inclusion of a mixed-methods methodology. My Whole Brain® profile's quantitative data gave me information about my various preferences for modes of thinking. As a result, I could design the activities for the different sessions from the standpoint of facilitating Whole Brain® hybrid learning, taking into account most of the different thinking preferences. I describe how I gathered the quantitative and qualitative data in the section that follows.

3.3.1 Initial baseline data

The Herrmann Brain Dominance Instrument® (HBDI®), according to Du Toit (2012), provides a baseline set of information for doing action research. According to McNiff and Whitehead (2011) baseline data pertaining to action research illustrates the procedures used. In this way, the results of the HBDI® were an essential component of the framework of my study – both at a theoretical and a scholarly level.

3.3.2 Quantitative data collection instruments

The HBDI® that I had completed prior to the action research study was the first quantitative data collection tool I used. It is considered secondary data as it already existed before I commenced with my research. This was included in the ethics clearance application. In Chapter 4, a set of quantitative data is offered as a summary of the data. Additionally, during Cycle A, B, C and D the participants completed a self-designed online feedback questionnaire before and after each online synchronous session.

3.3.3 Qualitative data collection instruments

The goal of gathering qualitative data from multiple sources, according to Nassaji (2015), is to "acquire a deeper understanding of individual participants, including their opinions, perspectives, and attitudes". I collected data using a variety of qualitative data collecting tools, which allowed me to undertake the action research in my work and transform my identity as a lecturer. I received an HBDI® report that included both qualitative and quantitative data. My preference codes and profile scores made up the quantitative data set. The profile scores were the sum of the scores for each quadrant; the profile scores reported in Chapter 4 show how much one's profile changes under pressure. As part of the brain profile, these scores were used to plot the image. Four numbers, A, B, C and D were arranged in the quadrants to form a preference code. The terms *primary*, *secondary* and *tertiary* were used to define the numbers used to represent the different zones of the profile grid: 1 (primary), 2 (secondary) and 3 (tertiary). The graphic profile gives a comprehensive representation of my brain dominance. Next, I describe the rest of the qualitative data collection instruments that I used.

3.3.3.1 Brain profile

According to De Boer et al. (2001), when completing the HBDI® Brain Profile Questionnaire, one receives a report with three data types that are analysed, although it is primarily qualitative. The qualitative data involves information about the thinking preferences of an individual, and the report discusses the individual's preferred brain quadrant or quadrants; the quadrants that are not preferred are also included in the results. The results of the HBDI® then include numerical data in the form of a scoring system given to each answer to generate the brain profile of the individual. The last type of data that forms part of the brain profile is the visual data in a colour-coded graph that shows the individual's preferences. The HBDI® data was shared and discussed by a registered HBDI® practitioner and was used as baseline data. The results of the HBDI® profile of myself are shared in Chapter 4.

3.3.3.2 Reflective journal

One means of gathering qualitative data was to keep a reflective journal. McAteer (2013) describes a reflective journal as a thinking space where the researcher can keep track of events to help the researcher reflect on personal and professional processes. I maintained a reflective journal throughout the four cycles. It consisted of two parts for each cycle. In the first part of the reflective journal, I reflected on the learning task the students had to complete before the synchronous session. In addition, I recorded my opinions and experiences on the different methods used in the LMS. I focused on implementing the Whole Brain® approach to facilitating hybrid learning used in my class. The second part of the journal consisted of notes made on reflecting on my facilitating of Whole Brain® hybrid learning during each online session.

3.3.3.3 Visual data

According to Bali and Smith (1992); McNiff (2016b), visual data include any data sources that depict reality visually. As a result, peers assessed visual data such as infographics throughout the synchronous session, and their feedback was recorded by means of screenshots. The effectiveness of the Whole Brain® hybrid learning tasks was examined using additional snapshots of the online synchronous sessions and videos that the students had recorded.

3.3.3.4 Feedback questionnaires

One of the quantitative data sources is the responses to the feedback questionnaires. The link to each of the feedback questionnaires was shared with the students via email before and after the online synchronous session. The feedback questionnaire before the online synchronous session focused on the Whole Brain® task completed before the synchronous session. The second feedback questionnaire focused on the Whole Brain® tasks completed during the online synchronous session. The feedback questionnaires that the students completed consisted of four sections. The first section contained questions to collect the participants' biographical information, while the second section consisted of questions about the respective learning tasks. Students received a questionnaire via email before the online synchronous session that they completed after completing the Whole Brain® task to give feedback on their experience of the task.

After the online synchronous session, the students completed a similar questionnaire on their experience of the Whole Brain® task completed during the online synchronous session. A balanced 1-to-4-point Likert scale, from *strongly disagree* to *strongly agree* was used. Each of the four parts of the questionnaire contained three questions. There was a total of twelve questions. The four quadrants of the Whole Brain® Model split the four portions. The questionnaires were distributed via email and completed anonymously; the questionnaires were created on Google Forms, and the link was shared, ensuring that the students' identity was protected.

3.4 DATA ANALYSIS

3.4.1 Qualitative data analysis

In action research, the data analysis process was done intermittently due to the cyclical nature of the study. As alluded to above, qualitative and quantitative analysis methods were used for this purpose (McAteer, 2013). The qualitative analysis included reflecting on the transformation of my practice by observing the Whole Brain® tasks completed by the students and the online synchronous session. The last qualitative data analysis that I used was the qualitative data that I received from the HBDI® brain profile that had already been analysed.

3.4.2 Quantitative data analysis

Creswell et al. (2014) define quantitative analysis as the graphical representation of a specific group of quantitative data. The feedback questionnaires were analysed and descriptive quantitative data analysis was used. Descriptive analysis can be defined as summarising data in three ways: mean, range and shape (Creswell et al., 2014; McAteer, 2013). The questionnaire responses were exported from Google Drive to Microsoft Excel, and the mean score of each quadrant was calculated. The following section explains how this study achieved validity and trustworthiness by defining the criteria and their identification used.

3.5 VALIDITY AND TRUSTWORTHINESS

Pelech (2021), citing Hammersley, says that if the narrative of the event or phenomenon is precise and truthful, validity can be achieved throughout the encounter. Jaafar (2004) explains that validity during action research depends on the value of the research for the students and facilitators involved in the action research process. The study had value for me as the researcher and facilitator as this study enabled me to transform my own teaching practice. When analysing the feedback questionnaires, it was evident that the study had value for the students as they stated that they had better knowledge of gymnastics as well as the different hybrid tools that we made use of. Therefore, the research can be seen as valid because of the value it had for the study's participants.

Joubert et al. (2016) state that democratic validity involves including the role players of the study. Therefore, the views of all role players were included in the data analysis during process. Getting feedback from the participants and reflecting on my practice ensured that all the role players contributed to the democratic validity. Furthermore, the role players were the students as the participants and I was the principal investigator. Joubert et al. (2016) explain that the validity of a study can be measured if the outcomes of the study have been achieved. The outcome of my study was to transform my own practice and professional lecturer identity. The main outcome of the study was achieved as my own practice as well as my lecturer identity had been transformed.

Pelech (2021) suggests that trustworthiness can be achieved in action research by including prolonged engagement between the researcher and the participants. There should be an active engagement with the material, consistent observation by the action researcher to be able to transform her practice, triangulation and peer debriefing. During the action research process followed prolonged engagement was ensured by means of communication on the LMS and the online synchronous sessions. The students further engaged with one another as they completed the Whole Brain[®] hybrid learning tasks. In the next section, relevant ethics considerations are discussed.

3.6 ETHICS CONSIDERATIONS

The higher education institution in question gave permission for the study to be conducted. The participants were informed about the purpose of collecting the data and their involvement in this process. It was furthermore explained that their participation was completely voluntary and that their studies or marks would not be affected in any way, whether they participated or not. In addition, all participants were assured that their responses would remain anonymous and confidential.

Throughout the study, I remained conscious that, as an action researcher, I had a dual role: one as a facilitator of learning and the other as a researcher.

3.7 CONCLUSION

Chapter 3 discusses the research design and methods used in this research study as action research. The research cycles in this action research process are explained next, as well as the data collection methods and analysis used. Finally, the validity and ethics considerations of the study are outlined. In the chapter to follow, the analysis of the data and outcomes are discussed.

CHAPTER 4: DATA ANALYSIS

4.1 INTRODUCTION

In this chapter, the data is presented and its analysis and findings are reported. The qualitative data collected during the four cycles is used for the purpose of data analysis. Firstly, the demographic information of the participants is presented. Secondly, I present the result of the HBDI® that I completed. Thirdly, I outline the execution of the individual action research cycles. Finally, the means of collecting data, namely photo evidence, observation sheets and student feedback is discussed.

This section briefly touches on the demographic information of the participants. Although not demographic, the students' prior knowledge of Educational Gymnastics and their competence with educational technology is mentioned.

4.1.2 Demographic information

The participants were all final-year student teachers with Life Skills as their major subject. The students thus had prior knowledge of Physical Education but not necessarily knowledge of Educational Gymnastics. In total, 14 female and six male students participated. The age distribution was 22 to 24 years. Most participants (18) were Afrikaans-speaking; the other two indicated that their home language was English. All the participants were situated in Pretoria and surrounding areas. Living in Pretoria was a prerequisite for all students studying at Aros before 2021. Most participants were full-time teaching assistants or had a half-day job as an au pair or tutor. There were two or three full-time students.

4.1.3 Prior knowledge and technological competence

Prior knowledge of Educational Gymnastics was not a requirement to participate in the study. However, it was beneficial when completing the learning tasks, I designed. Although 11 students had previous knowledge of Educational Gymnastics, the knowledge varied from participation in gymnastics or acrobatics during their school career to watching the sport.

As many as 18 students considered themselves competent in using technology. However, two students indicated they did not feel competent using communication

technology, word processing software, presentation software or other educational technology.

4.2 BASELINE DATA: MY HBDI® BRAIN PROFILE

This section contains my brain profile and other data and information relating to the profile. The instrument was used to determine my preferences for different modes of thinking and how to visualise them. The HBDI® is a research instrument that gathers quantitative and qualitative data simultaneously. Next, I present a table consisting of three sets of numbers and calculations, indicating the quantitative data of my brain profile. My thinking preference is illustrated in Table 4.1.

Preference Code	2	1	1	2
Profile Scores	58	110	67	55
Under Pressure	72	108	72	36

Table 4.1: My HBDI® profile summary

My thinking preference is a double dominant brain profile (Figure 4.1). There are four types of HBDI® profile when completing the HBDI® questionnaire. The first type of HBDI® profile is the single dominant profile that can occur over any of the four quadrants. A person with a single dominant profile has a fixed way of viewing the world. Their decisions and perceptions are generally trustworthy, unified and comfortable. Double dominant profile individuals may experience conflict between the two dominant quadrants. This type of profile tends to visit the other modes less frequently but finds it simpler to transition between various styles and has a greater understanding of their own and other mental opposites. The triple dominant profile has only one non-primary quadrant. Such individuals find it easier to interact with others as they understand three of the four quadrants. One drawback of a triple dominant profile is that decision-making is slow because all the alternatives must be considered. The quadruple dominant profile is where all quadrants are dominant. Individuals with this type of profile find it easy to switch between modes and quadrants. They have an incredibly balanced perspective but may struggle with internal conflict because of interaction between the quadrants. Next, I discuss my thinking preference profile.

My brain profile's primary quadrants are Quadrant B and Quadrant C. These are situated in the profile's lower left and lower right sides. The following figure is a representation of my thinking preferences as a result of the HBDI® questionnaire

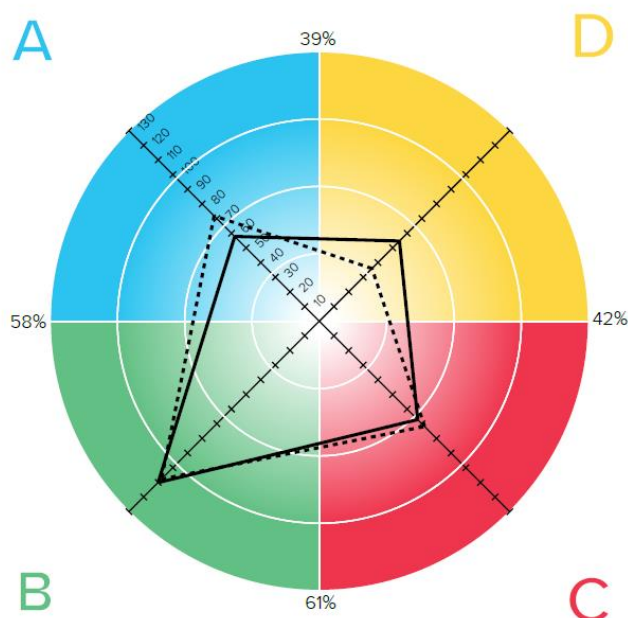


Figure 12: My brain profile

As a person I have a solid conservative thinking preference; I prefer organisation and structure and value attention to detail. All the previous characteristics are associated with Quadrant B (Green), the quadrant I prefer. Quadrant C (Red) is the second preferred quadrant. Quadrant A (Blue) is my third preferred quadrant. The last preferred quadrant is quadrant D (Yellow). My brain profile shows a lack of logical and analytical processes that are situated in Quadrant A, and creative and innovative thinking situated in Quadrant D. Next, the analysis of the action research cycles of the study is discussed.

4.3 ACTION RESEARCH CYCLES

The action research spiral comprises four cycles (Consult Figure 3.2 in Chapter 3). I first report the analysis of the data collected during each cycle. Next, I present the data during the different steps of the action research process described in Chapter 3. For example, the data analysis took place during the observation step. The steps include pre-planning, planning, acting, observing, reflecting and evaluating.

The pre-planning step included my preparations on Moodle's online platform to implement facilitating Whole Brain[®] hybrid learning. The planning step included the planning that took place before the online session. The step of acting (act) refers to the facilitating of learning during the online session. The observation step took place during and after the online session. I observed my practice by watching the online session recording; this included making notes in my reflective journal and completing observation sheets. Next, I observed the actions of the students concerning the effectiveness of facilitating Whole Brain[®] hybrid learning. The reflecting step included determining whether the learning outcomes planned for the online session had been achieved. The evaluation step included evaluating the cycle as a whole and determining what changes needed to be made to transform my teaching practice.

4.3.1 Cycle A

The outcomes for Educational Gymnastics prescribed by the Department of Basic Education (2014) are the following: For Grade 4, the primary outcome is rhythmic gymnastics. In Grade 5, the learners must do gymnastics sequences, including skipping, running, forward and backward rolls, and jumps, including combining two or more locomotor skills. In Grade 6, learners should demonstrate competence in combining locomotor, rotation, and balance gymnastics skills.

Pre-planning

During the pre-planning phase, I created the Zoom link on the LMS. I also created the link on Survey Monkey. As mentioned in Chapter 1, my study changed because my learning opportunities had changed from in-person or face-to-face mode to facilitating online learning because of the challenges the COVID-19 pandemic brought about. I thus had to create a Zoom link before the online session so that the students could access the session. I also created the Survey Monkey link so that students could access the rubric they created.

Step 1: Planning

I planned the following:

- a. Students were requested to search on Google or Google Scholar for the four floor skills (handstand, cartwheel, forward roll and backward roll) as CAPS prescribes.

- b. A Whole Brain[®] task using the LMS Moodle required of the students to make a mind map of the four gymnastics floor skills using Coggle.it software. They used Coggle.it software in groups of 2 to 3 to construct knowledge before the online session.
- c. Students were requested to create a rubric to peer review the mind maps of their peers, using the rubric created on Survey Monkey during the online session. Firstly, they had to identify criteria for peer assessment that could be included in the rubric. Then the students were to discuss creating the rubric in class.
- d. The video was made during the cycle as I got more queries from the students regarding what should be included in the mind map, and it was thus not something I had planned initially but implemented nevertheless because of the questions.
- e. As part of the action research cycles, I planned for the students to present their mind map during the synchronous session, as discussed in Chapter 3. Therefore, part of the planning was that students were expected to nominate a representative to show and talk about their group's mind map.
- f. Students were required to assess each group's mind map, using the rubric.
- g. I planned to use a student feedback questionnaire to learn more about the students' experience of the hybrid task and the synchronous session. I also used the feedback to make changes before the following cycle. An example of the questionnaire is shared during the discussion of the observation step.

Step 2: Acting

- a. Students searched on Google or Google Scholar for the four gymnastics floor skills: forward roll, backward roll, cartwheel and handstand.
- b. Students created mind maps. The students used the online software Coggle.it to collaborate online and create a mind map about the four gymnastics floor elements.
- c. Students created the rubric as a class during the synchronous session. Firstly, students were allowed to suggest criteria for assessing a mind map. Next, there was a class discussion about the criteria. Finally, the criteria proposed by the students were imported into Survey Monkey. Importing the rubric into

Survey Monkey gave the students instant access to the rubric to access their fellow students' mind maps.

- d. Video: As mentioned in the planning step, I got queries from the students about completing the Whole Brain[®] learning task. Therefore, I decided to make a video to explain the task in more detail to help the students better understand what the task entailed.
- e. Students presented their mind maps. Each student who represented a group was made a presenter on Zoom when it was their turn to present. They presented their screen. Each presenter had up to 10 minutes to explain their mind map orally.
- f. Student's peer-assessed the mind maps of their classmates, using the rubric they had created. An example rubric is presented as part of the discussion under the observation step.
- g. The students completed the feedback questionnaire I shared with them.

Step 3: Observing

I observed the following:

- a. The students were challenged to search for the four gymnastics floor skills. Responses to the feedback questionnaire indicated that the students felt challenged when doing the initial search for gymnastics skills. Some of the students struggled to find the correct skills for artistic gymnastics. I observed this in some student queries; some groups did not include the correct skills during the synchronous session.
- b. As mentioned, I observed that some students did not understand the Whole Brain[®] task. I was asked to explain further what was expected of each group. Figure 4.2 provides evidence of the infographic that set out the Whole Brain[®] task. The original authentic infographic is in Afrikaans – the medium of instruction used.



Figure 13: Screenshot of the instructions given to students online

The self-regulated learning task was explained using a visual banner the students had to complete. The mind map of the four floor skills (forward roll, backward roll, cartwheel and handstand) that the students created consisted of the following: The learning steps of the gymnastics skills, physical body support done by the teacher and the movement skill that is developed by demonstrating the skill.

I observed that some students were uncomfortable with Coggle.it software. I make this statement because about half of the students indicated in the feedback questionnaire that they did not enjoy summarising their work using Coggle.it software. The COVID-19 pandemic contributed to this because the students were not used to working remotely and were also in lockdown and unable to meet in person. In addition, the students were unsure how to do group work remotely, as can be deducted from their responses to the relevant item included in the feedback questionnaire.

- c. The following figure is a snapshot of the rubric created on Survey Monkey. As seen in Figure 4.3, the learning criteria can be translated as follows: Layout, content, a summary of the content, creativity of the mind map and language usage because the Institution's language of teaching and learning was Afrikaans. Therefore, the rubric was created in Afrikaans.

	SWAK (1)	GEMIDDELD (2)	GOED (3)	UITSTEKEND (4)
UITLEG	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
GEPASTE INHOUD	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
OPSOMMEND	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
KREATIWITEIT	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
TAALGEBRUIK	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Figure 14: Screenshot of the rubric created on Survey Monkey to evaluate the group's mind maps

The criteria that the students suggested were discussed during the online synchronous session. When students suggested a specific criterion, they had to explain what it meant to them. We did not include the explanation of the criteria in the rubric to save time. The class agreed on what was meant by each criterion.

The following section consists of a discussion on each criterion that the students suggested during the synchronous session. The items discussed are a translation from Afrikaans into English. The students suggested the following criteria to assess each group's mind map by their peers:

- Layout: Peers assessed one another on the structure of the information presented and the overall presentation of the mind map.
 - Relevant content: The students' peers assessed one another on the learning steps, physical support of the teacher and motor development.
 - Summary of the content: The students' peers assessed one another on summarising the content.
 - Creativity: The students assessed one another on their creativity; this included using colour, different font types and images.
 - The language used: The students' peers assessed the use of language, including the correct terminology for Educational Gymnastics.
- d. I observed that they knew how to create a rubric during the online session. Survey Monkey helped create the rubric remotely. I further observed that the infographic was, to some extent, successful. Most of the students agreed that the instruction given was clear. There were queries from the students about the mind map layout, what to include, and the use of Coggle.it software.

- e. I observed that students had questions about how to complete the learning task. Therefore, I made a video to explain the learning task to the students. The following figure is a still photo taken from the video. As seen in Photo evidence 1, I was at home while facilitating the session. The still photo of the video can be seen in Photo evidence 1. Facilitating the session lasted for about 3 minutes – I orally explained the learning task the students had to complete before the online session. A link to the full video can be accessed here:

https://drive.google.com/file/d/1O5OebhaAdgT0Q5WbMepON_6RHpar98PH/view?usp=share_link.

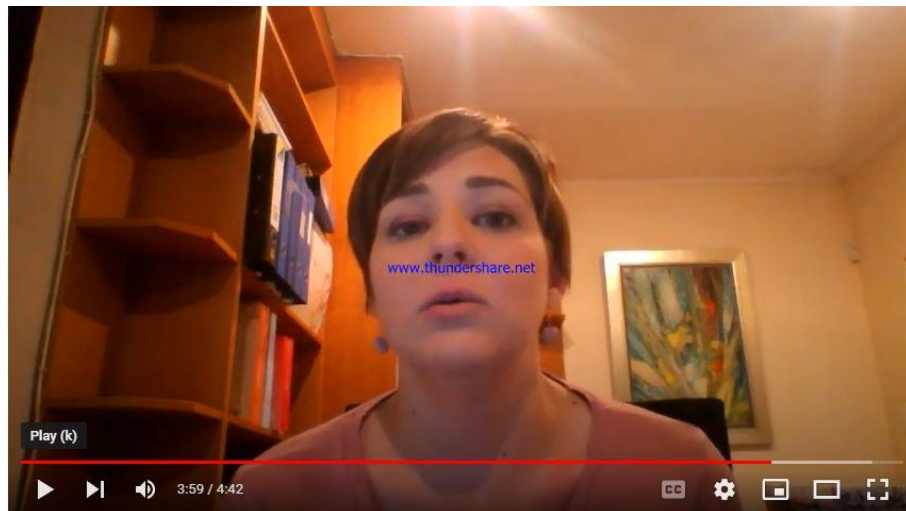


Photo evidence 1: Still photo of the video on the Whole Brain® task students had to complete

I observed how the students presented their mind maps to their peers. The following is a link to the recording of the synchronous session. In Photo-evidence 2 a still photo of the online synchronous session is presented:

https://drive.google.com/file/d/1mTLOILhWSNmKBzx0hDfpHKWqYjJzUpBP/view?usp=share_link

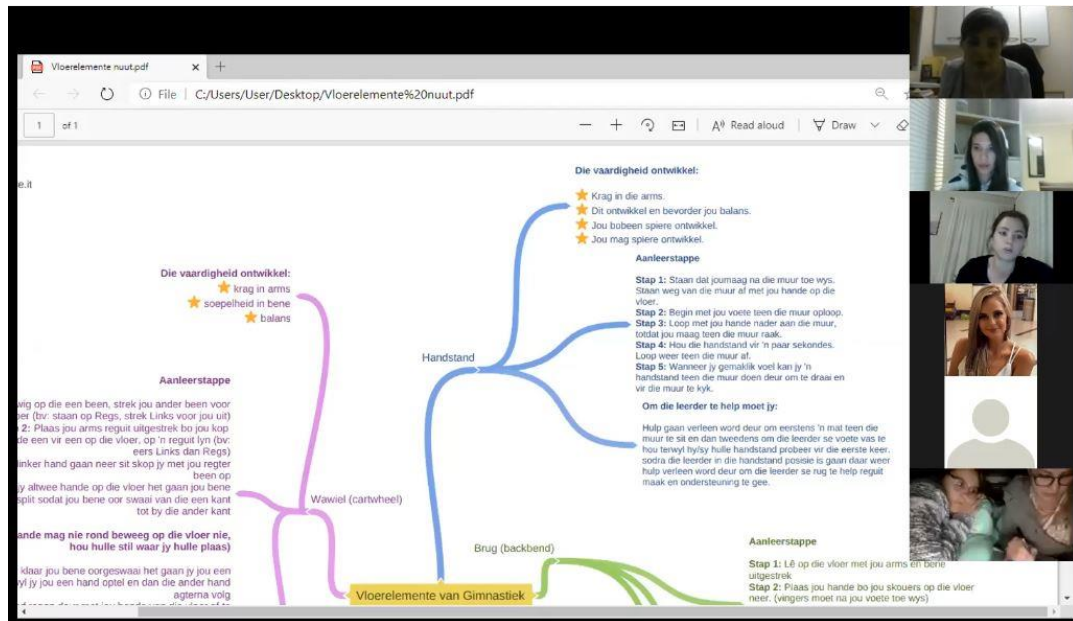
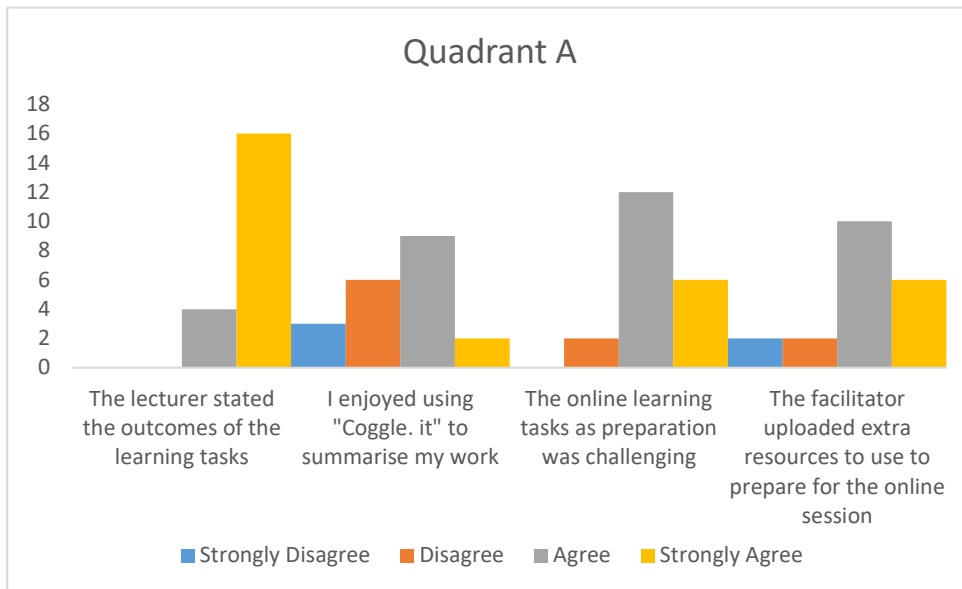


Photo evidence 2: Still photo of the online synchronous session

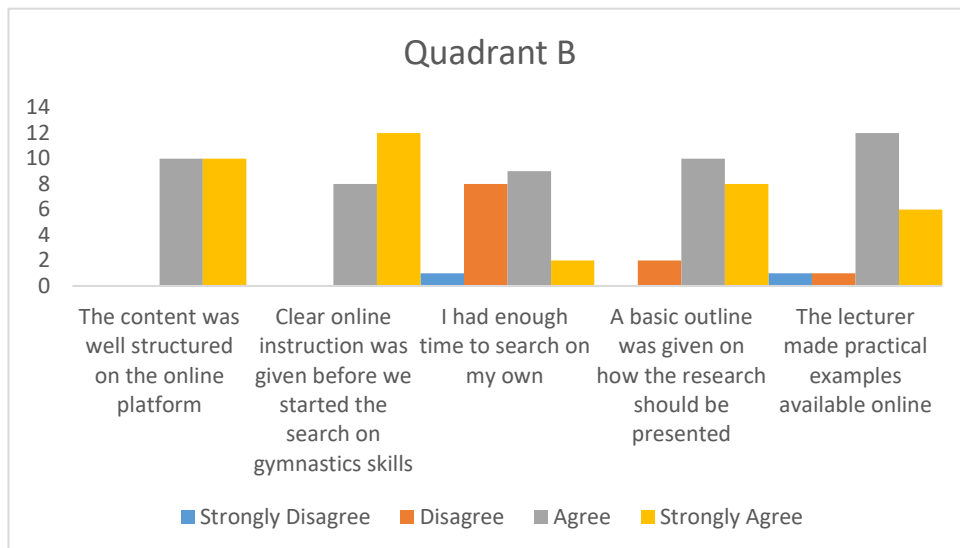
When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were activated during the learning task. Table 4.2 shows the analysis of the students' answers to the questionnaire. The data set suggests that most participants (16) strongly agreed that I had given clear instructions regarding the learning task. Most participants (18) agreed that the learning task was challenging, and they also agreed that extra resources were provided on the online platform. All the participants indicated that the content was structured and visual; infographics were used online. However, the students had contradictory opinions on how much time they had to complete the task and on the use of a discussion forum. All the participants agreed that the video had helped them understand the learning task better. The participants had contradictory opinions on working in small groups; about 50% of the students did not enjoy working in small groups. Most participants agreed that the lecturer used visual resources and practical examples. However, the students had different experiences with using Coggle.it software, where 11 participants agreed, and nine disagreed, indicating that they enjoyed using the software. Most of the students agreed that they could use their creativity during the task completion, but not all the participants agreed about pictures and drawings. Table 4.2 shows students' responses to the questionnaire for the hybrid learning activity.

Table 4.2: Results of the feedback questionnaire before the synchronous session during Cycle A

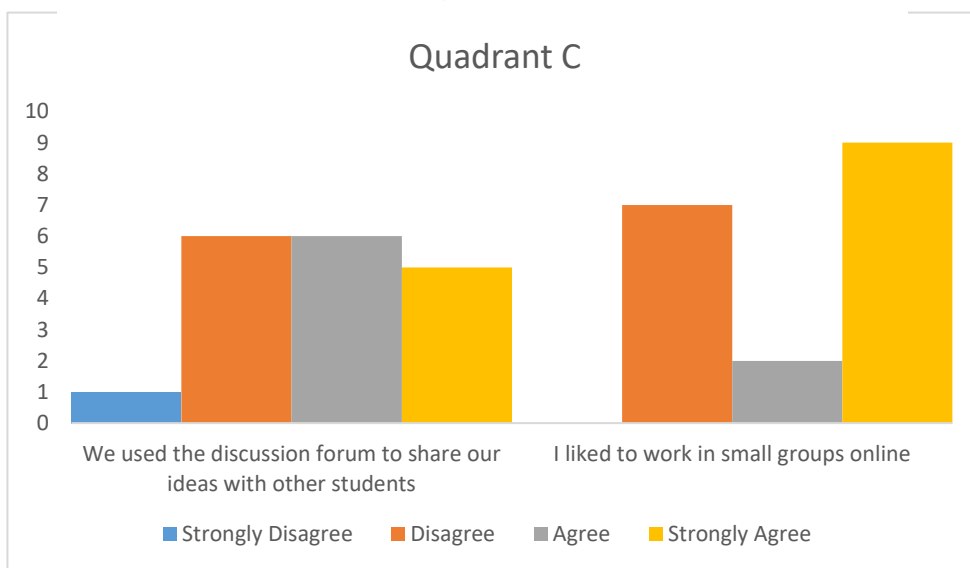
Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• The lecturer stated the outcomes of the learning tasks.	Quadrant A	0	0	4	16
• I enjoyed using Coggle.it to summarise my work.	Quadrant A	3	6	9	2
• The online learning tasks as preparation were challenging.	Quadrant A		2	12	6
• The facilitator uploaded extra resources to use to prepare for the online session.	Quadrant A	2	2	10	6
• The content was well structured on the online platform.	Quadrant B	0	0	10	10
• Clear online instruction was given before we started the search on gymnastics skills.	Quadrant B	0	0	8	12
• I had enough time to search on my own.	Quadrant B	1	8	9	2
• A basic outline was given on how the research should be presented.	Quadrant B	0	2	10	8
• We used the discussion forum to share our ideas with other students.	Quadrant C	3	6	6	5
• The use of a video helped me understand the instructions better.	Quadrant D	0	0	12	8
• I liked to work in small groups online.	Quadrant C	2	7	2	9
• The lecturer made practical examples available online.	Quadrant B	1	1	12	6
• The lecturer used PowerPoint, Prezi, videos or other visual representations I could explore online.	Quadrant D	0	4	8	8
• While brainstorming with a classmate, I had a positive experience with Coggle.it software.	Quadrant D	2	4	8	6
• The learning activities helped me to be more creative.	Quadrant D	1	1	10	8
• The lecturer used pictures and photos to guide me during my learning.	Quadrant D	0	4	6	10



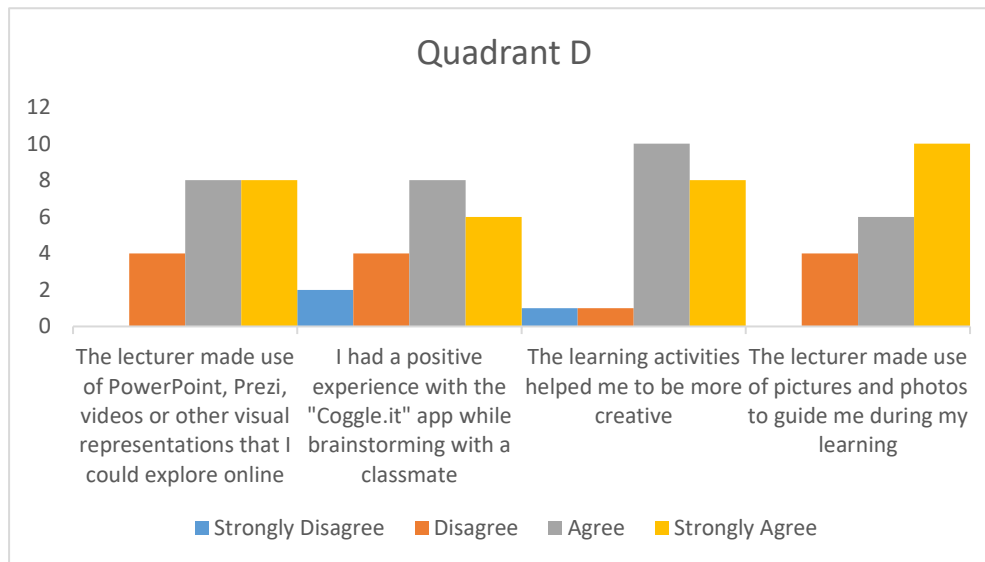
Graph 4.1: Summary of answers for Quadrant A before the synchronous session during Cycle A



Graph 4.2: Summary of answers for Quadrant B before the synchronous session during Cycle A



Graph 4.3: Summary of answers for Quadrant C before the synchronous session during Cycle A



Graph 4.4: Summary of answers for Quadrant D before the synchronous session during Cycle A

When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were equally activated during the synchronous session. Table 4.2 shows the analysis of the students' answers to the questionnaire. Holistically considered, taking into account what happened before and after the session, it might be the case that more collaboration and actions at a personal and interpersonal level, typical of Quadrant C could be involved. The data set suggests that most participants (16) agreed they had a positive experience during the online synchronous session. Most participants (16) agreed that I had facilitated the content and used practical examples. The participants (18) agreed that I had stated the session's outcomes and all the participants agreed that I had good knowledge about gymnastics. However, the participants were indifferent to the fact that the learning activities were challenging. Eight participants disagreed that the learning activities were challenging, and 12 agreed. There were also different opinions on using the resource; seven disagreed, and 13 agreed. The participants were indifferent to structure, discipline, time, and instruction. They agreed that the session was well structured and the class discipline was good, but they disagreed on the class ending on time.

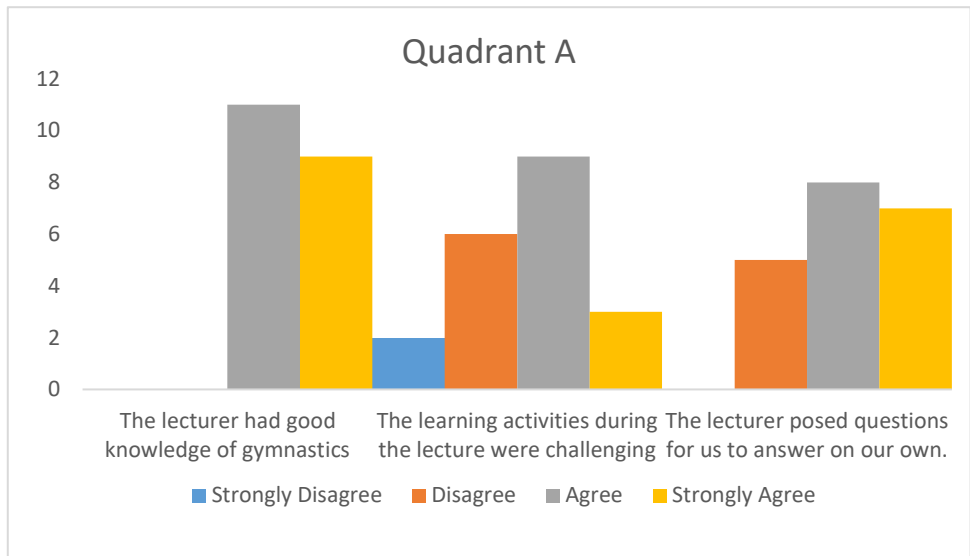
The students mostly agreed (14) that clear instructions were given. Most participants agreed that they worked in groups during the online synchronous session, that the lecturer encouraged participation, and that it was interesting. On the use of PowerPoint, Prezi, and other visual resources, 14 participants

agreed, and six disagreed that the resources were used. The participants agreed (15) that they had to solve problems independently and that I shared new ideas and examples. Lastly, all the participants agreed they could be creative during the online synchronous session. Table 4.3 shows students' responses to the questionnaire after the online synchronous session

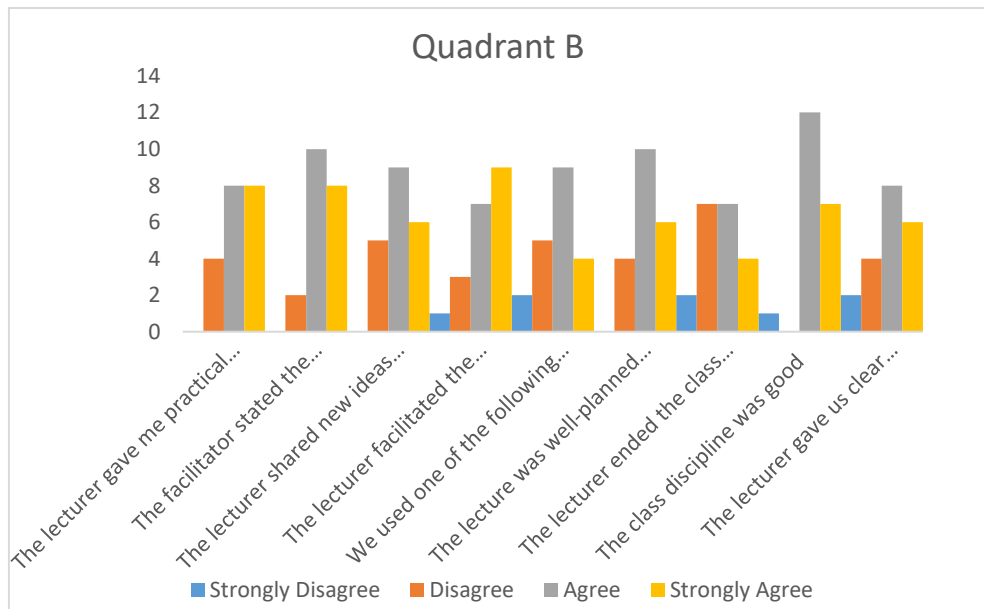
Table 4.3: Results of the feedback questionnaire after the synchronous session during Cycle A

Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• I had a positive experience during the online class.	Quadrant C	0	4	7	9
• The lecturer facilitated the content well.	Quadrant B	1	3	7	9
• The lecturer gave me practical examples that I could use in my practice.	Quadrant B	0	4	8	8
• The facilitator stated the outcomes of the online session.	Quadrant B	0	2	10	8
• The lecturer had good knowledge about gymnastics.	Quadrant A	0	0	11	9
• The learning activities during the lecture were challenging.	Quadrant A	2	6	9	3
• We used one of the following during the lecture: study guide, textbook and reading journal.	Quadrant B	2	5	9	4
• The lecture was well-planned and structured.	Quadrant B	0	4	10	6
• The lecturer ended the class on time.	Quadrant B	2	7	7	4
• The class discipline was good.	Quadrant B	1	0	12	7
• The lecturer gave us clear instructions before we started the learning activities.	Quadrant B	2	4	8	6
• We worked in groups when discussing the content.	Quadrant C	0	2	6	12
• The lecturer encouraged class participation.	Quadrant C	0	0	9	11
• The lecture was informative.	Quadrant D	2	0	9	9
• The lecturer used PowerPoint, Prezi, videos or other visual representations.	Quadrant D	0	6	8	6

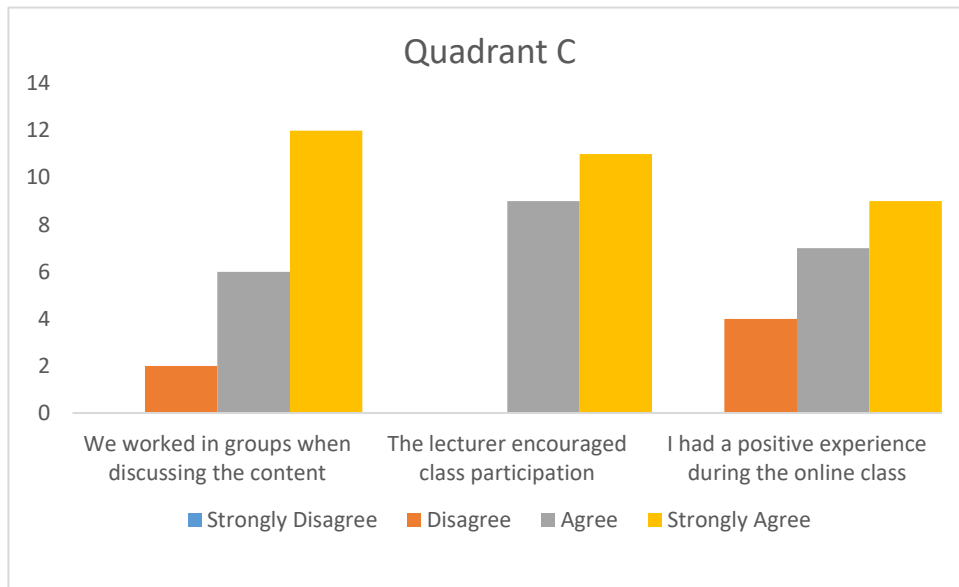
• The lecturer posed questions for us to answer on our own.	Quadrant A	0	5	8	7
• The learning activities helped me to be more creative.	Quadrant D	0	0	11	9
• The lecturer shared new ideas and examples.	Quadrant B	0	5	9	6



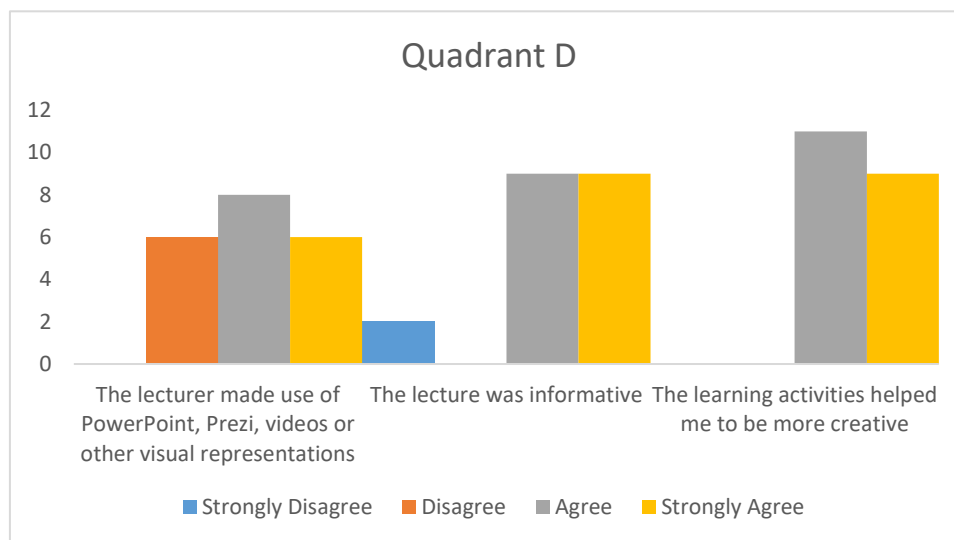
Graph 4.5: Summary of answers for Quadrant A after the synchronous session during Cycle A



Graph 4.6: Summary of answers for Quadrant B after the synchronous session during Cycle A



Graph 4.7: Summary of answers for Quadrant C after the synchronous session during Cycle A



Graph 4.8: Summary of answers for Quadrant D after the synchronous session during Cycle A

Step 4: Reflecting

I reflected on the following in the first cycle:

- a. As I was reflecting on the search for the four gymnastics floor skills, I realised that some students with previous knowledge of gymnastics found it challenging to identify the four floor elements I wanted on the mind map. In the future, I will be more specific on the floor elements.
- b. The learning task was a Whole Brain® task because it activated all the brain quadrants, as indicated in the previous step. The infographic should have included the four floor elements to make it more understandable. Instead, it

ensured that it was a self-regulated task. The students could also work remotely on the mind map as Coggle.it software is live and interactive, and changes are immediate.

- c. The group work worked well because the students could choose their group members, which made them work better together. This is consistent with one of the research's findings by Marks and O'Connor (2013) that is stated in Chapter 2. Students felt that by choosing their groups, they were more in control of the group's abilities and ultimately, the overall success of the group work. After the peer assessment, the results showed one poor, one average one good mind map. Therefore, I think it was a good idea for the students to choose their group, and I will use the same method in the future. In such uncertain times during the pandemic, I think having control over their groups made the students feel more comfortable working with peers they knew well than working with students they did not know. The only downside of the students choosing their groups was that they were constantly in their comfort zones. If the student groups were assigned randomly, the students would be forced to collaborate with people they had never worked with before, motivating them to use Quadrant C while utilising their interpersonal abilities.
- d. When examining the infographic that states the requirements of the mind map, I consider this to be a poor mind map as seen in Figure 4.4 as this mind map had a concise description of the gymnastics floor skills. However, the group did not explain how the teacher should support the learners while mastering the gymnastics skills and monitor their motor development. Only keywords were used, with no explanation offered. Click the link below for the full-page image: <https://drive.google.com/file/d/1UrSQKJRjo8DWpny1Mz-GRdZYKWjA6ljb/view?usp=sharing>

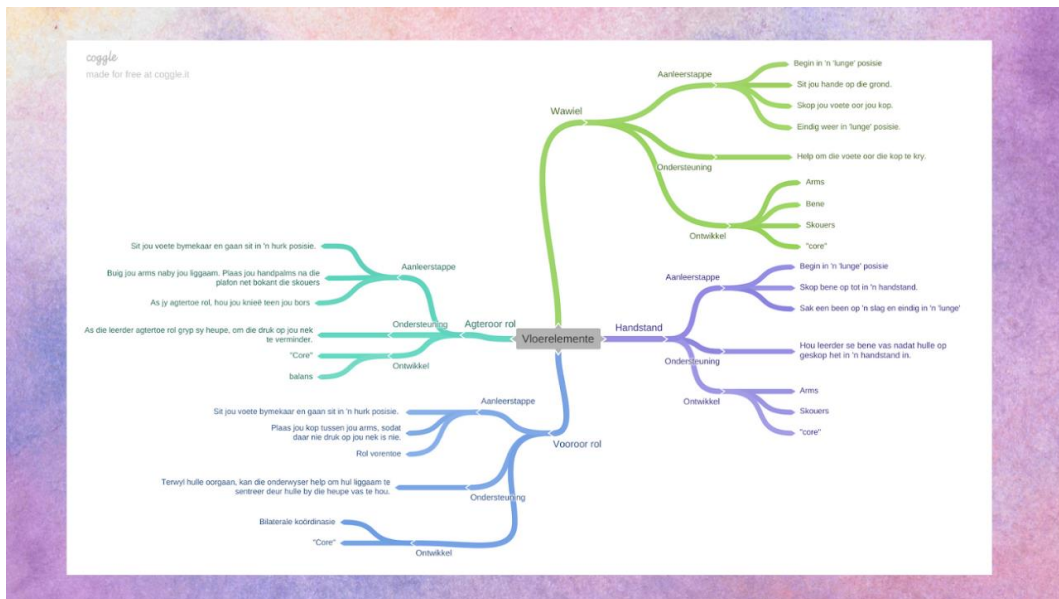


Figure 15: Evidence of a poor mind map

When examining the next mind map (Figure 4.5). I see it as average because the students included all the elements required by the instruction on the LMS Moodle. However, the learner support was not correctly explained. For example, in the part where the students had to explain motor development, only keywords but no explanation were given. Click the link below for the full-page image:

<https://drive.google.com/file/d/1MHpspB9qfVTuDM2vSmjVGcUgVP6kP3yq/viiew?usp=sharing>



Figure 17: Evidence of a good mind map

I watched the video recording of the online synchronised session. Then, I studied the mind maps of each group. Precise evaluation standards for mind maps, as recommended by Hua and Wind (2019), are covered in Chapter 2. As a result, each mind map was examined where Hua and Wind's (2019) criteria were used to evaluate the student mind maps.

The first mind map (Figure 4.4) is regarded as poor because, according to Hua and Wind (2019), the mind map has a natural structure, and the relationships can be seen clearly. However, the level of connection is not clearly shown in the figure. The taxonomy and categories are not apparent. Different colours were used, but not different shapes. Keywords were used well. No pictures were used. The same font was used. The main header had a bigger font size, but the sub-headings and text were the same sizes.

The second mind map (Figure 4.5) is average because, according to Hua and Wind (2019), the mind map has a natural structure, and the relationships can be seen clearly. The level of connection is visible but could be more prominent.

The taxonomy is somewhat visible but could be more pronounced. Different colours were used, but the shapes were the same. Although visuals were employed, keywords were still effectively used. All the fonts used were the same. The main header, sub-headings, and text fonts were different in size.

The third mind map (Figure 4.6) is good because, according to Hua and Wind (2019), the mind map has a natural structure, and the relationships are visible. The taxonomy is pronounced and well thought through; different colours and shapes were used. No pictures were used. Different font sizes were used for the main header, sub-headings and text. The same font was used, but fonts were bolded to underscore essential headings.

- e. The rubric was not very detailed, and this was because of the time limit of the online session. Survey Monkey: The Survey Monkey software, as explained in the planning stage of the cycle, was more time-efficient because of the 40-minute time limit, making it easier to manage. After completing the rubric, each group of 2 to 3 students nominated one member to present the mind map they had created before the online session to the rest of the class.

- f. The video helped the students to better understand the learning task, and I would definitely use a video in future. However, when reflecting on the video, the quality was not good as I used a free recording app with a watermark, as seen in Photo evidence 1. I also had to upload the video onto YouTube first; because of the video size, I could not embed it directly onto the LMS. In the future, I will take more time to find software to make a video of high quality without any watermarks.

Overall, the students' mind maps were good. Changes could have been made to better their mind maps; for example, the layout of the mind maps could be improved, as well as the summarising of the content to ensure the mind map did not have too much information. However, the students did well with their presentation of their mind maps. The only problem was the switching between presenters, which took time out of the session. In the following session all the presenters sent their visuals to me, and I presented them on the screen as they discussed them.

- g. Peer assessment was successful as the students could see where they could have added more information. The class discussion worked well as the students each had a turn giving their insights through oral or written communication, using the chat box on what criteria the students would use to peer assess a mind map.
- h. The first part of the questionnaire asked the students about their overall experience with the LMS platform. The second part of the feedback questionnaire focused on the different brain quadrants activated during the online and face-to-face sessions. I emailed the link to the feedback questionnaire to the participants to complete. The feedback questionnaire was rather lengthy. Therefore, I will shorten the feedback questionnaire in the future.

Step 5: Evaluation

During the online session, it was apparent that Quadrants C and D were activated mainly when the students participated. The learning task (mind map) they completed before the online synchronous session was a Whole Brain® task, as all the quadrants were activated. The students' feedback suggested that I had made the online synchronous session's outcomes clear because I stipulated that we were going to create a rubric that we would use to evaluate the different mind maps. Making the outcomes clear and stipulating the creating of a rubric activated Quadrant B. The participants further agreed that the session was well structured. Previously, I usually spent time preparing for the online synchronous session where I taught topics, and my practice throughout the study dramatically changed. Students had to build their own knowledge during the study. During Cycle B, I activated Quadrant A during the online synchronous session.

4.3.2 Cycle B

As explained during Cycle A, the Educational Gymnastics that should be covered during the Intermediate Phase include rhythmic gymnastics and gymnastics sequences with a combination of locomotive skills. According to the Department of Basic Education (2014) curriculum document for Life Skills Grades 4 to 6, basic first aid is covered in the Grade 6 health and environmental responsibility theme. In the Life Skills curriculum at Aros, we focus on treating injuries during Physical Education

to prepare the student teachers for possible injuries sustained. As part of my study, I concentrated on treating injuries during Educational Gymnastics.

Pre-planning

During the pre-planning phase, I created the Zoom link on the LMS. I created the link on Survey Monkey too. As mentioned in Chapter 1, my study changed because my learning opportunities had changed from in-person or face-to-face mode to online mode because of the challenges the COVID-19 pandemic brought about. I thus had to create a Zoom Link before the online session so that the students could access the session. I also created the Mentimeter link so that students could have access to the rubric they created.

Step 1: Planning

I planned the following:

- a. Students were requested to search on Google or Google Scholar for possible injuries that can occur in gymnastics and the possible treatment of those injuries using basic first aid.
- b. A Whole Brain[®] task using the LMS Moodle required the students to record themselves treating a simulated injury that could occur while doing gymnastics. Then, in groups, the students had to make a video showing how they would treat the injury before the online synchronous session.
- c. During Cycle A, each representative presented their mind map by sharing their screen. However, during the observation phase, I observed that switching between the different presenters took unnecessary time. I planned to make an assignment link on the LMS Moodle where groups would submit their videos before the synchronous session to save time during the session so that I could share the video on my screen, and the representative then turned on their microphone and presented their video.
- d. As part of the action research cycles, I planned that the students had to present their video during the synchronous session, as discussed in Chapter 3. Therefore, part of the planning was that students were expected to nominate a representative to show and talk about their group's video.

- e. Students were requested to give feedback on each group's presentation of their peers' treatment of an injury. Therefore, I created the Mentimeter link so students could provide instant feedback after each presentation.
- f. I made videos to show the students how to treat the injuries correctly.
- g. I planned to use a student feedback questionnaire to learn more about the students' experience of the hybrid task and the synchronous session. I also used the feedback to make changes before the following cycle. An example of the questionnaire is shared as part of the discussion of the observation step.

Step 2: Acting

- a. Students searched on Google or Google Scholar for possible injuries that can occur during the execution of the four floor skills (handstand, cartwheel, forward roll, and backward roll).
- b. The students created videos demonstrating how they treated a possible injury that can occur while demonstrating gymnastics skills. They used their mobile phones to record the videos and demonstrated the treatment of themselves or one of their group members.
- c. I created the assignment link on the LMS Moodle so that the groups could load their video on the LMS to make the transition between the different presentations during the synchronous session more fluent and save time so that the session could end on time.
- d. Students presented their videos. Each student who represented a group was made a presenter on Zoom when it was their turn to present. They presented their screen. Each presenter had up to 10 minutes to explain their video orally.
- e. The students assessed their classmates' videos. An example of the feedback is presented as part of the discussion under the observation step. Students gave feedback to their peers using Mentimeter. We also had a class discussion on the different videos.
- f. I made five videos on possible injuries that can occur during the execution of gymnastics floor skills to show the students the correct way to treat different injuries. This helped the students to compare their own videos to mine and self-assess where they could improve on the treatment of injuries.
- g. The students completed the feedback questionnaire I shared with them.

Step 3: Observing

I observed the following in the second cycle:

- a. The students found the search for injuries easier than the gymnastics skill because more resources were available. The treatment of the injuries is also readily available online. During the synchronous session, I observed that most groups chose an ankle, knee or hand injury.
- b. Students found the treatment of injuries easier to complete. This might be because some students did have previous knowledge of first aid and thus found it easier to share their knowledge on the subject. Figure 4.7 provides evidence of the infographic that set out the Whole Brain® task



Figure 18: Evidence of the online infographic that explained the self-regulated learning task

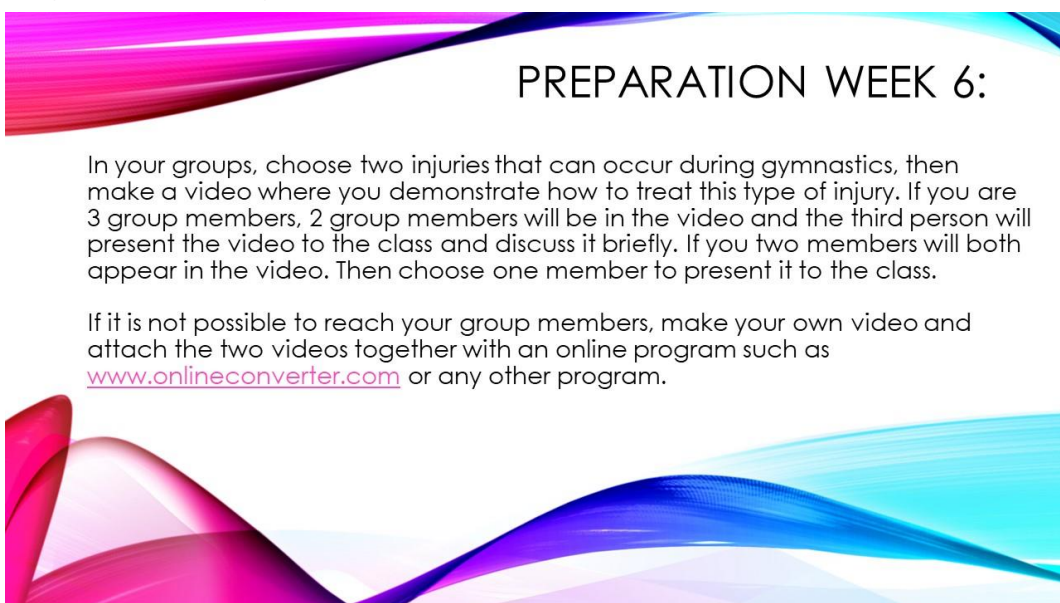


Figure 19: Translated evidence of the online infographic that explained the self-regulated learning task

I observed that the students were much more comfortable making the video than doing the mind map. I can make this statement because all the students indicated in the feedback questionnaire that they enjoyed making the video. The COVID-19 pandemic contributed positively as the students lived the *new normal* and had to make videos in more than one module at Aros.

- c. I observed that creating the assignment link on the LMS Moodle made it much easier for the students to share or link to their videos. This made it easier during the online synchronous session to show the videos as I presented them, and the nominated group representative could present their group's video.
- d. I observed how the students presented their videos to their peers. Photo evidence 3 shows how the students presented the videos during the synchronous session. The following is a link to the recording of the synchronous session:
https://drive.google.com/file/d/1ba589CTyyZZnynVeRXNofUvapsXMdcou/view?usp=share_link



Photo evidence 3: A still photo of one of the students presenting their video during the online synchronous session

- e. The following figure provides photo evidence of the students giving one another feedback via Mentimeter (Photo evidence 4). I observed that the students gave constructive criticism, such as having good explanations, just struggling with the demonstration of the second video. The students also used analytical thinking to analyse the different videos and execution of the first aid methods



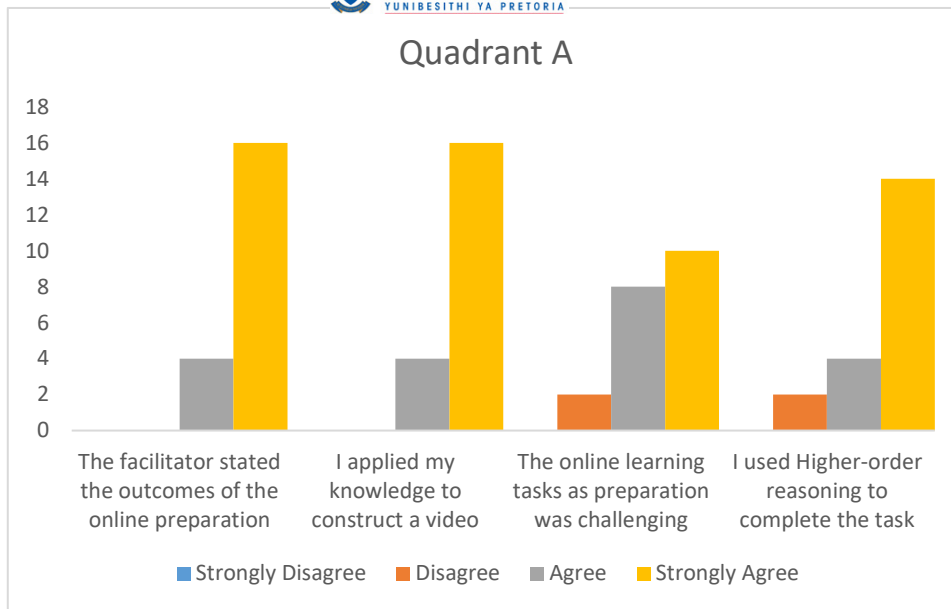
Photo evidence 4: Evidence of the feedback given to the different groups using Mentimeter

- f. When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were activated during the learning task. Table 4.4 shows the analysis of the students' answers to the questionnaire. The data set suggests that all the participants (20) agreed and strongly agreed that I had clearly stated the learning outcomes. All the participants (20) agreed they applied their knowledge to construct the video. Most participants (18) agreed that the learning task was challenging and that they had to use higher order reasoning to complete it. All the participants indicated that the content was structured and visual; infographics were used online. Most students agreed they had enough time to complete the task but had contradictory views about using a discussion forum; 16 participants agreed, and four disagreed. The participants indicated that they enjoyed working in small groups; this data differs from what was evident in Cycle A. I think the students were more comfortable working in groups during Cycle B as they had already worked in them in Cycle A. They further agreed that they had a positive experience making the video. Most participants agreed that the lecturer used visual resources and practical examples. All the students agreed they could use their creativity during the task completion.

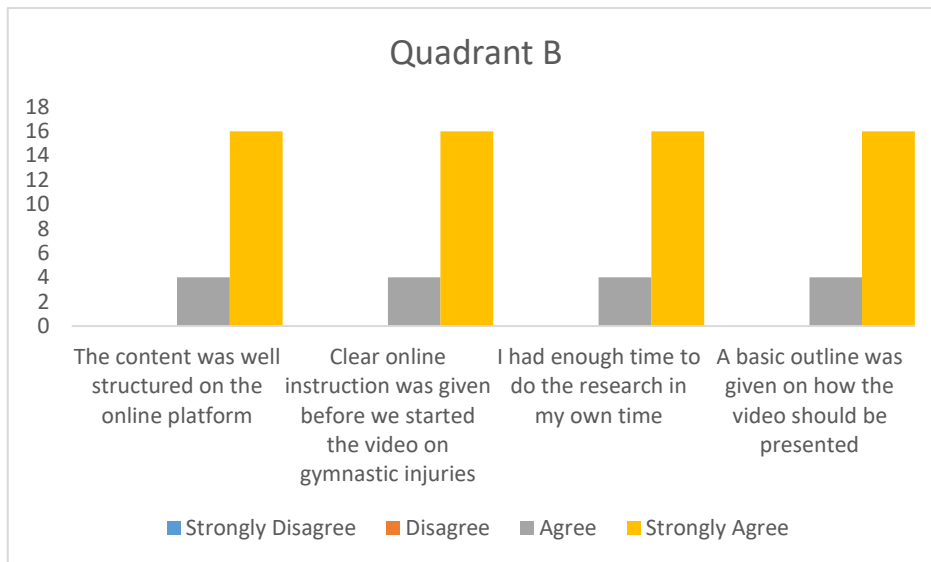
The following table (Table 4.4) shows students' responses to the questionnaire for the hybrid learning activity:

Table 4.4: Results of the feedback questionnaire before the synchronous session during Cycle B

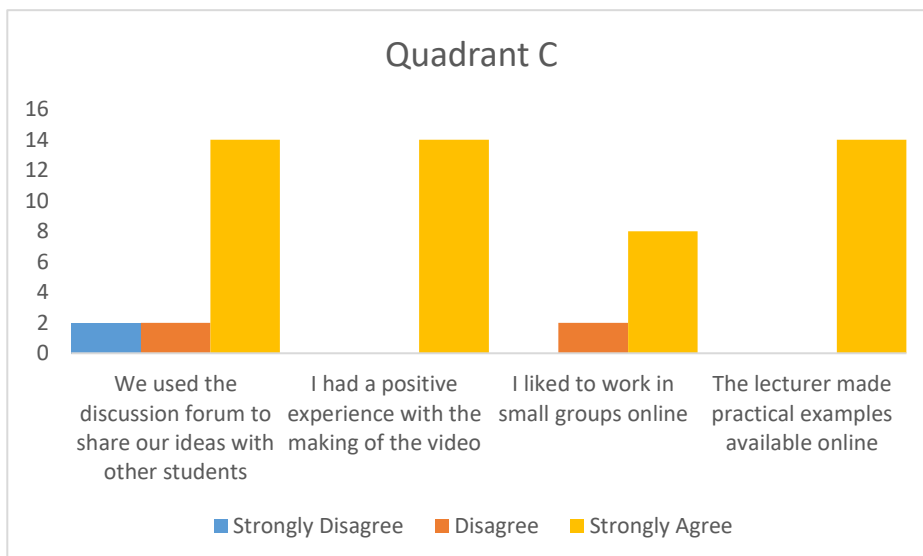
Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• The facilitator stated the outcomes of the online preparation.	Quadrant A	0	0	4	16
• I applied my knowledge to construct a video.	Quadrant A	0	0	4	16
• The online learning tasks as preparation were challenging.	Quadrant A	0	2	8	10
• I used higher order reasoning to complete the task.	Quadrant A	0	2	4	14
• The content was well structured on the online platform.	Quadrant B	0	0	4	16
• Clear online instruction was given before we started the video on gymnastics injuries.	Quadrant B	0	0	4	16
• I had enough time to research on my own time.	Quadrant B	0	0	4	16
• A basic outline was given on how the video should be presented.	Quadrant B	0	0	4	16
• We used the discussion forum to share our ideas with other students.	Quadrant C	2	2	2	14
• The use of an infographic helped me understand the instructions better.	Quadrant D	0	0	6	14
• I liked to work in small groups online.	Quadrant C	0	2	10	8
• The lecturer made practical examples available online.	Quadrant C	0	0	6	14
• The lecturer used PowerPoint, Prezi, videos or other visual representations I could explore online.	Quadrant D	0	0	2	18
• I had a positive experience with the making of the video.	Quadrant C	0	0	6	14
• I could make use of my creativity while making the video.	Quadrant D	0	0	10	8
• I was able to make my own video.	Quadrant D	0	0	2	18



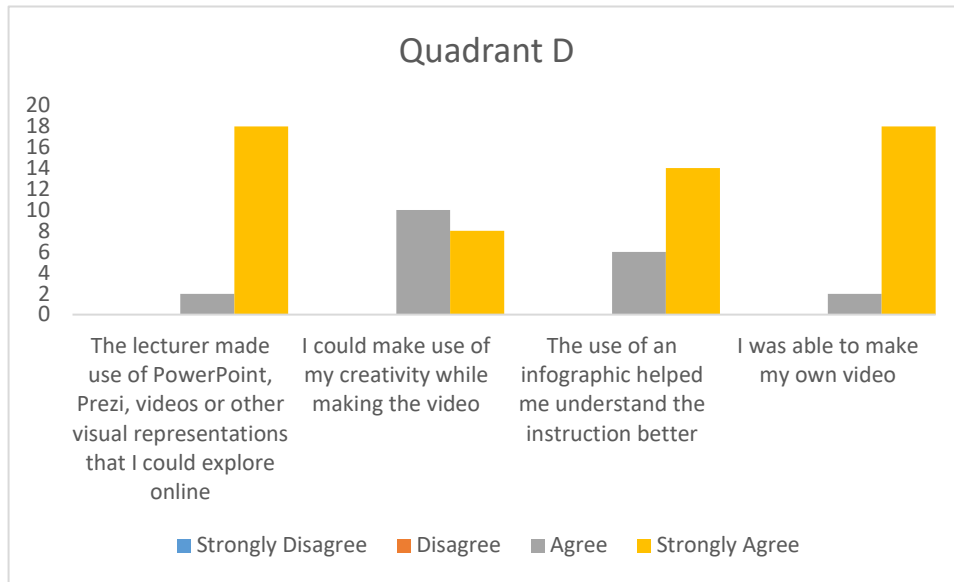
Graph 4.9: Summary of answers for Quadrant A before the synchronous session during Cycle B



Graph 4.10: Summary of answers for Quadrant B before the synchronous session during Cycle B



Graph 4.11: Summary of answers for Quadrant C before the synchronous session during Cycle B



Graph 4.12: Summary of answers for Quadrant D before the synchronous session during Cycle B

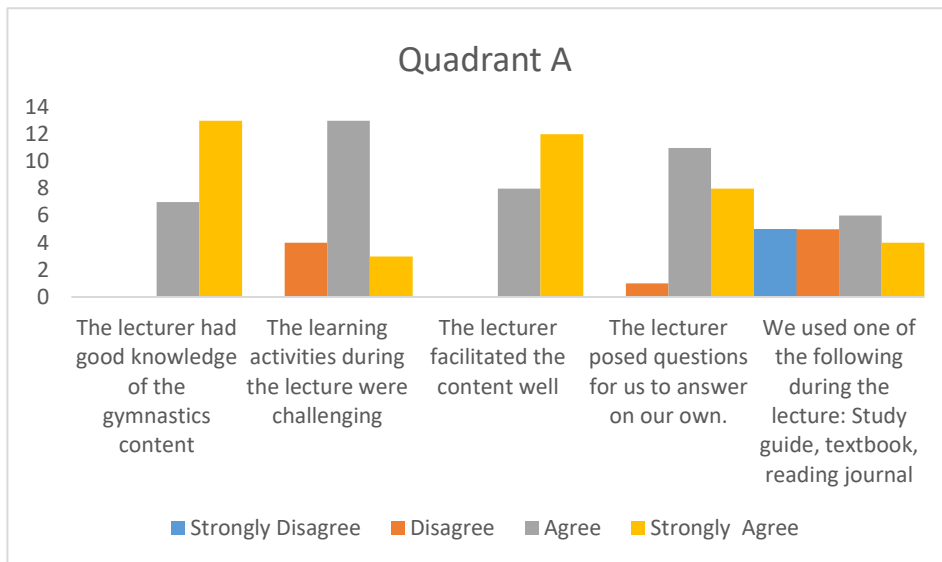
When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were activated during the synchronous session. Table 4.5 shows the analysis of the students' answers to the questionnaire. The data set suggests that all the participants (20) agreed that they had a positive experience during the online synchronous session. All the participants (20) agreed that I had facilitated the content and used practical examples. The participants (18) agreed that I had stated the session's outcomes and all the participants (20) agreed that I had good knowledge about gymnastics. However, the participants were indifferent to the fact that the learning tasks were challenging. Four participants disagreed that the learning activities were challenging, and 16 agreed. There were different views on using the resource; ten disagreed, and ten agreed. The participants were impartial regarding structure, discipline, time and instruction. All the participants (20) agreed that the session was well structured and the class discipline was good, but they disagreed on the class ending on time. Four participants indicated that the online synchronous session did not end on time, and 16 participants indicated that the online synchronous session did end on time.

The students mostly agreed (18) that clear instructions were given. All participants agreed that they worked in groups during the online synchronous session, that the lecture encouraged participation, and that it was interesting. On the use of PowerPoint, Prezi, and other visual resources, all the participants agreed that the resources were used. The participants agreed (19) that they had to solve problems by themselves and that they could be creative during the online synchronous

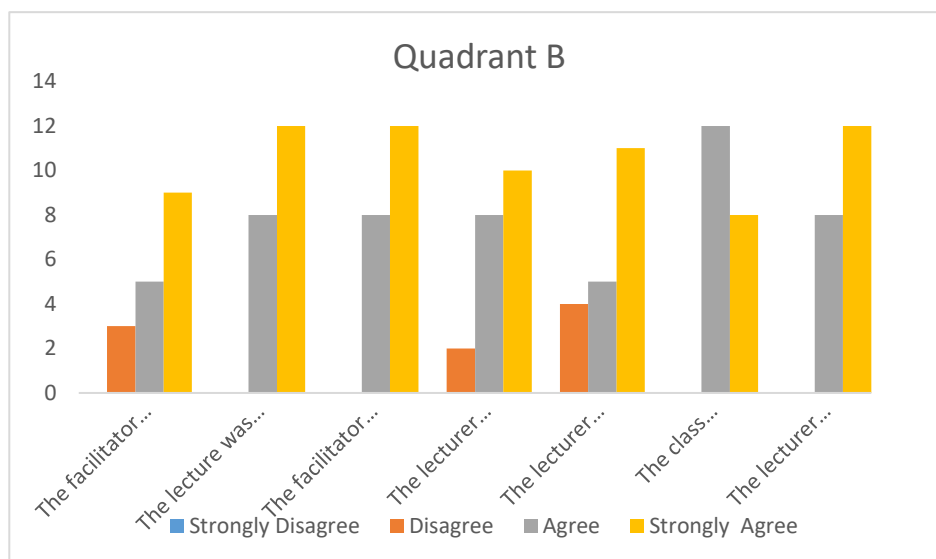
session. Lastly, all the participants agreed that I shared new ideas and examples during the online synchronous session.

Table 4.5: Results of the feedback questionnaire after the synchronous session during Cycle B

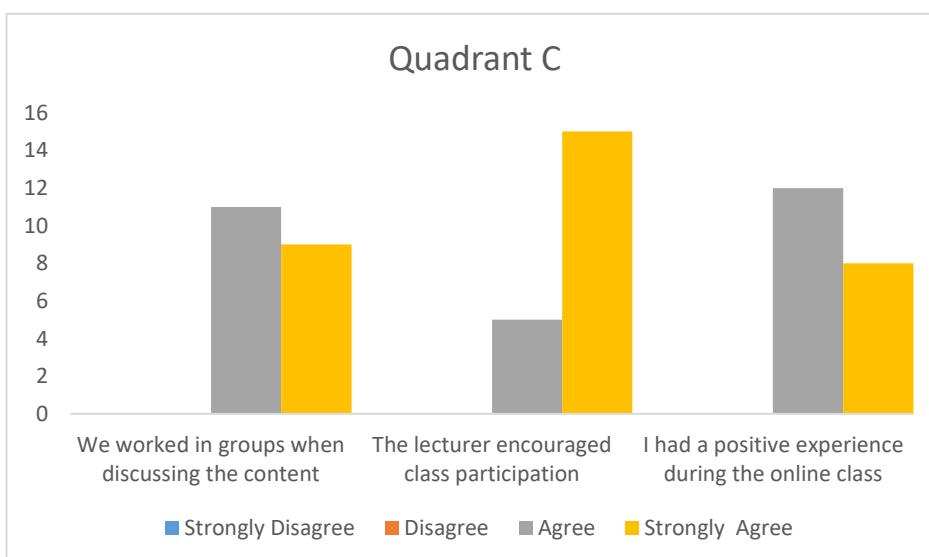
Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• I had a positive experience during the online class.	Quadrant C	0	0	12	8
• The lecturer facilitated the content well.	Quadrant A	0	0	8	12
• The facilitator gave me practical examples that I could use in my practice.	Quadrant B	0	0	8	12
• The facilitator stated the outcomes of the lecture.	Quadrant B	0	3	5	9
• The lecturer had good knowledge about the gymnastics content.	Quadrant A	0	0	7	13
• The learning activities during the lecture were challenging.	Quadrant A	0	4	13	3
• We used one of the following during the lecture: Study guide, textbook, reading journal.	Quadrant A	5	5	6	4
• The lecture was well-planned and structured.	Quadrant B	0	0	8	12
• The lecturer ended the class on time.	Quadrant B	0	4	5	11
• The class discipline was good.	Quadrant B	0	0	12	8
• The lecturer gave us clear instructions before we started the learning activities.	Quadrant B	0	2	8	10
• We worked in groups when discussing the content.	Quadrant C	0	0	11	9
• The lecturer encouraged class participation.	Quadrant C	0	0	5	15
• The lecture was informative.	Quadrant D	0	0	12	8
• The lecturer made use of PowerPoint, Prezi, videos or other visual representations.	Quadrant D	0	0	7	13
• The lecturer posed questions for us to answer on our own.	Quadrant A	0	1	11	8
• The learning activities helped me to be more creative.	Quadrant D	0	1	8	11
• The lecturer shared new ideas and examples.	Quadrant B	0	0	8	12



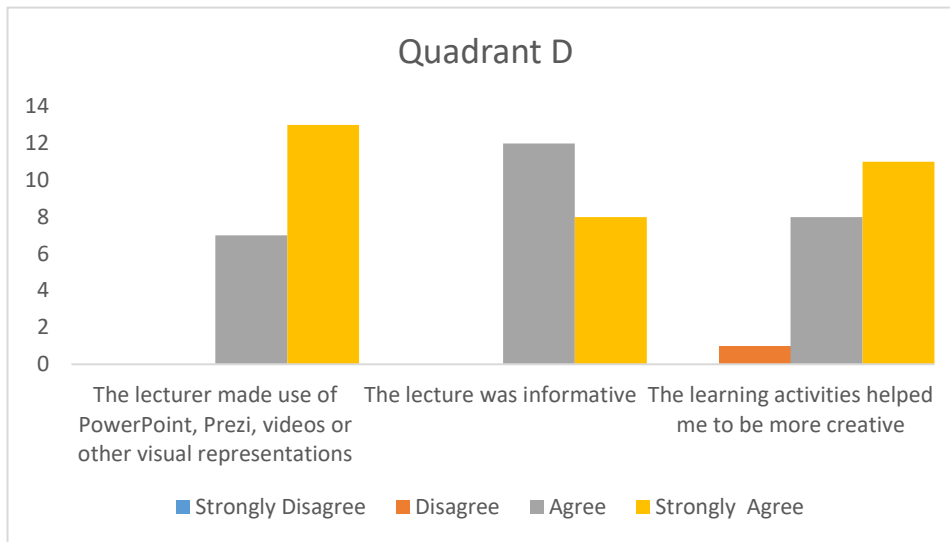
Graph 4.13: Summary of answers for Quadrant A after the synchronous session during Cycle B



Graph 4.14: Summary of answers for Quadrant B after the synchronous session during Cycle B



Graph 4.15: Summary of answers for Quadrant C after the synchronous session during Cycle B



Graph 4.16: Summary of answers for Quadrant D after the synchronous session during Cycle B

Step 4: Reflecting

I reflected on the following in the second cycle:

- a. Most students had prior first aid training and did not find it challenging to recognise the potential ailments. I will not change this portion of the learning task in any way.
- b. The learning task was a Whole Brain® task because it activated all the brain quadrants, as indicated in the previous step. The infographic worked well for this cycle; it ensured that it was a self-regulated task. The students could work remotely by making two videos and then combining the videos to present in class. I did not have as many queries about the learning task as in Cycle A.
- c. Making use of an assignment link made the logistics during the online synchronous session much easier because there was not a constant change between presenters. I will use the same method in the following cycles.
- d. The students treated the injuries correctly. I can assume that the students had previous knowledge of first aid because they had to do a first aid course as part of their studies. Next, I analysed each video. I distinguished which ones I considered poor, average or good, using the criteria given to the students on the infographic to complete the Whole Brain® task.

Next is a still photo (Photo evidence 5) of one of the group's videos where the group demonstrated how to treat injuries that can occur when doing

gymnastics. The first still photo is of a poor video. Click the link below to view the full video:

https://drive.google.com/file/d/1lqeYsZgxHBawHeTlgFeiPNithDmgh6ZT/view?usp=share_link



Photo evidence 5: Evidence of a poor video

When using the infographic to evaluate the students' video, I considered the above video to be poor, even though the students followed the instructions when making the video. The video did not include all the steps when treating an injury that can occur during the execution of gymnastics skills. The students also did not explain each step while treating the injury. This resulted in making a video that was not a Whole Brain® task as was expected from the students.

Next is a still photo (Photo evidence 6) of a video made by a group that is considered average. Click the link below for the full video:
https://drive.google.com/file/d/1feZWnLF8N3NMw00MHODwyaeHsaK3TjR7/view?usp=share_link:



Photo evidence 6: Evidence of an average video

When using the infographic to evaluate the students' video, I considered the above video as average, even though the students followed the instructions when making the video. The video missed the last step when treating an injury that can occur during the execution of gymnastics skills. The students clearly explained each step verbally as they treated the injury.

Lastly, a still photo (Photo evidence 7) of a video made by a group that is considered good. Click the link below for the full video:
https://drive.google.com/file/d/1eX2by5luY7B4PNysTPiA5FR72r6bcfDI/view?usp=share_link



Photo evidence 7: Evidence of a good video

When using the infographic to assess the students' video, I considered the above video to be good because the students followed the instructions when making the video. The video included all the steps when treating an injury that can occur during the execution of gymnastics skills. The students comprehensively explained each step verbally as they treated the injury.

- e. They were using Mentimeter as a feedback tool that worked well. Mentimeter is live software that instantly shows the comments made, but is also anonymous, so students felt comfortable giving positive feedback and criticism. Students gave positive feedback on the collaboration board and made good suggestions.
- f. After the synchronous online session, I watched the video recording of the session. Then, I further studied the videos. I made the following observations: In the first 5 minutes of the online meeting, I explained how the session would be structured (Quadrant B). I also stated the learning outcomes (Quadrant B) of the session. Students had to know what was expected from them. This activated Quadrant A and B as Quadrant A is characterised by logic and a specific purpose. Quadrant B was activated when the structure of the session was discussed. During the next part of the session, the main focus was on the presentation of the videos and the peer assessment of the groups' videos.
- g. The first part of the questionnaire asked the students about their overall experience with the LMS platform. The second part of the feedback questionnaire focused on the different brain quadrants activated during the online and face-to-face sessions. I emailed the link to the feedback questionnaire to the participants to complete. The feedback questionnaire was rather lengthy. Therefore, I will shorten the feedback questionnaire in the future.

Step 5: Evaluation

During the online session, it was apparent that mainly Quadrant C and D were activated when the students participated. The learning task (video) they had completed before the online synchronous session was a Whole Brain® task, as all the quadrants were activated. The students' feedback suggested that I had made the online synchronous session's outcomes clear because I stipulated what we were going to do during the online synchronous session, which was that we would use

Mentimeter to give feedback on the different videos, which activated Quadrant B. The participants further agreed that the session was well structured. Before the synchronous online session, my practice had completely changed since, in the past, I would spend time preparing for the online synchronous session to teach content; during the study the students had to construct the knowledge themselves. During Cycle B, I activated Quadrant A during the online synchronous session.

4.3.3 Cycle C

As for cycles A and B, the Educational Gymnastics that should be covered during the Intermediate Phase included rhythmic gymnastics and gymnastics sequences with a combination of locomotive skills. According to the Department of Basic Education (2014) curriculum document for Life Skills Grades 4 to 6, basic first aid is covered during the Grade 6 health and environmental responsibility theme. We emphasised the four floor skills and how to facilitate Educational Gymnastics in the Life Skills curriculum at Aros. The students applied the information they researched and summarised in Cycle A during this cycle.

Pre-planning

During the pre-planning phase, I created the Zoom link for the online synchronous session on the LMS. I also created the link on Mentimeter for student feedback during the online synchronous session. As mentioned in Chapter 1, my study changed because my learning opportunities had changed from in-person or face-to-face mode to online facilitating learning due to the challenges the COVID-19 pandemic brought about. I thus had to create a Zoom Link before the online session so that the students could access the session. I also created the Mentimeter link so that students could have access to be able to give instant feedback to their peers.

Step 1: Planning

I planned the following:

- a. A Whole Brain[®] task using the LMS Moodle required of the students to record themselves doing the gymnastics routine. In groups, the students had to make a video showing how they would teach and execute the floor skills before the online synchronous session.

- b. I learnt from Cycle B that I had to do re-planning for Cycle C. During Cycle B, students submitted their videos on an assignment link that I had created before the synchronous session. Even though it worked well by showing each video during the synchronous session, the presentations took unnecessary time. By showing the videos online in real time and adding a presentation, it took too much mobile data during the synchronous session. Therefore, I changed my planning for Cycle C. I requested the students to email their video or video link to me before the synchronous session so that I could load it onto the LMS, and the students could watch the videos before the synchronous online session to prepare for the class. They could also do it on time and when WIFI was available.
- c. As part of the action research cycles, students had to give feedback on the videos they watched before the online synchronous session. For this purpose, they were expected to use an interactive whiteboard online.
- d. The students made videos where they explained and demonstrated the four basic floor elements. The videos were used for peer assessment. The students had to connect the basic floor skills in their video.
- e. During the online synchronous session, the students discussed the correct way to assess Educational Gymnastics presented during the Physical Education class in the Intermediate Phase.
- f. A short student feedback questionnaire was used to obtain responses reflecting the experience of the hybrid task and the synchronous session. I used the feedback to make changes before the following cycle. An example of the questionnaire is shared during the discussion of the observation step.

Step 2: Acting

- a. Students made videos of their demonstration of the floor skills before the synchronous session.
- b. The videos were emailed to me, and I loaded them onto the LMS.

- c. Students gave feedback to their peers using Mentimeter. There were technical problems with the whiteboard, so I used Mentimeter again as it worked well during Cycle B. We also had a class discussion on the different videos.
- d. I made a video demonstrating the floor elements as a routine, and the correct way to perform them. This helped the students to compare their own videos to mine and self-assess where they could improve on their demonstrations.
- e. Students created criteria for assessment of the Educational Gymnastics four floor skills. Firstly, students were allowed to suggest criteria for assessing their skills. Next, there was a class discussion about the criteria.
- f. I planned to use a student feedback questionnaire to see the students' experience of the hybrid task and the synchronous session. I also used the feedback to make changes before the following cycle. An example of the questionnaire is shared as part of the discussion of the observation step.

Step 3: Observing

I observed the following:

- a. Most of the students found the execution of the four floor skills difficult. Some students had competed in gymnastics or acrobatics and were able to execute the skill, and some students used learners or family members to execute the skills. The figure below (Figure 4.9) provides evidence of the infographic that set out the Whole Brain[®] task.



Figure 20: Evidence of the online infographic self-regulated learning task in Afrikaans

I observed that there were some language errors in the infographic as mentioned above. This can be attributed to the fact that the research cycles followed one another closely and that I did not spend enough time checking the infographic for language errors.

As the task above is written in Afrikaans, the language of learning used at Aros, it is given in its translated form in Figure 4.10 next.

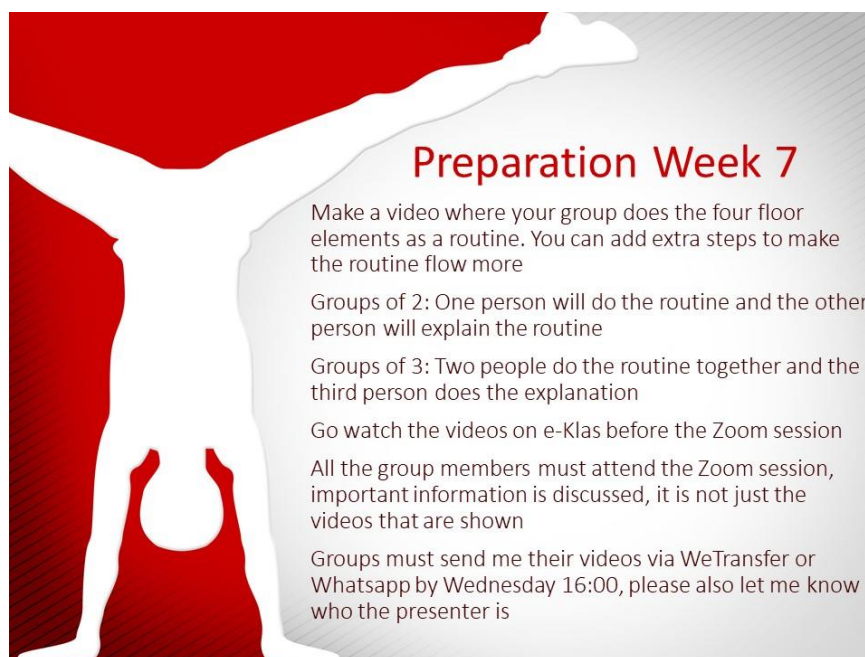


Figure 21: Translated evidence of the online infographic self-regulated learning task

I observed that the students were much more comfortable making the video than during Cycle A and B. They were now used to recording themselves even though their skills of *producing such a video* were not executed perfectly. I can make this statement because all the students indicated in the feedback questionnaire that they had enjoyed making the video. The COVID-19 pandemic helped this because students at Aros had to produce videos for more than one module and had to adapt to the *new normal*.

- b. I observed that loading the different videos on the LMS before the online synchronous session worked well because the students could watch the videos and come prepared to the online synchronous session.
- c. The following image (Photo evidence 8) is photo evidence of the students giving one another feedback via Mentimeter. I observed that the students gave

constructive criticism. The students used critical thinking, for example, assessing their peers' work using criteria set in the infographic to analyse the different groups' videos and the execution of the four floor elements. The following link is a link to the recording of the synchronous session.
https://drive.google.com/file/d/1ZC_N2CcqKo45mPCXcBf6lfb94jIVXILL/view?usp=share_link

Go to www.menti.com and use the code 40 97 24 3

Mentimeter

Terugvoer Groepe

Groep 1: het al die elemente voorgestel en baie goed verduidelik maar was nie in video formaat gewees nie

Groep 1: was goedGroep 2: goedGroep 3: briljant aangebied!

Groep 1: daar was geen videoGroep 2: baie oulikGroep 3: baie gied gedemonstreerGroep 4: goedGroep 5: het net 2 elemente gewysGroep 6: baie goedGroep 7: uitstekend

Groep 1: die elemente word gedemonstreer, maar di was nie as 'n roetine gedoen nie, al die elemente was apart gedoenGroep 2:elemente is geod gedemonstreer deur al die leded van die groep.

Groep 1: goedGroep 2: goedGroep 3: BAIE goed

Groep 3 het die bewegings mooi duidelik uitgebeeld. Dit was stadig gedoen dat dit maklik gevolg kan word as dit in 'n klas sou aangebied wees. Groep 1 het die bewegings baie effektief uitaabeeld. Baie ekstra

1: kon videos aan een gesit het2: Het net 3 vloer elemente gedoen3: al vier gedoen4: oulik gebruik van 2 mense5: net 2 gedoen6: oulik musiek by7: goed8: Kon niks sien nie



Photo evidence 8: Evidence of the feedback given by peers to the different groups using Mentimeter

During the online synchronous session, I chose to use Mentimeter as a way for students to give feedback as this is an interactive and visual way for students to give feedback. This application allowed the students to give live feedback to their peers. My role as a facilitator was to control and present the feedback on my screen while students were giving the feedback. I guided the students on what they should focus on when peer assessing their classmates' videos. The photo evidence above is a screenshot of me reading some comments aloud and asking for more detail.

- d. I observed that showing the students a video where I performed the different gymnastics floor skills helped them see where they could improve on their own videos or explain the skills in their own practice.
- e. I observed that the students needed help to set specific criteria for assessing a gymnastics floor skill. The students could not identify the most crucial part of each of the four floor skills.

- f. When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were activated during the learning task, and higher order thinking, according to Bloom's taxonomy, was included. Examples include the following:

The data set suggests that 14 agreed and six strongly agreed that I had clearly stated the instructions to execute the learning task. Clearly stating the instructions is part of Quadrant B.

One participant agreed, and 19 strongly agreed that they applied their knowledge to construct the video. Constructing is the highest level of Bloom's taxonomy. Applying knowledge was at a lower level, but that is what was needed to learn at the level of creating something. To create something falls dominantly within Quadrant D. Other quadrants do come into play in the following way: Knowledge has to do with Quadrant A, which is fact-based; the process that they had to follow is typical of Quadrant B, while Quadrant C has to do with preferences for hands-on learning.

The fact that I used videos, pictures and infographics that they could use in their own practice aligned with the Quadrant B preference for appreciating examples or demonstrations.

Most participants (16) agreed that the learning task was challenging. The participants also agreed (11), and four strongly agreed that they had to use higher order reasoning to complete the learning task. In terms of Bloom's incremental levels of learning, it is clear that this was indeed aligned with the expectations and execution of the task. The learning task was challenging. I observed that the students found it challenging to execute the movement correctly. This can be because the students had not been exposed to gymnastics or did not have the physical ability to perform the skill.

Most of the participants (19) indicated that the content was structured. All but one participant agreed that they could explain the floor routine step by step. These two pointers are indicative of learning related to Quadrant B.

- g. The students had contradictory views about having enough time to design their gymnastics routine. One participant strongly disagreed, four disagreed, and

the remaining participants agreed (10) and strongly agreed (five). Time is typical of Quadrant B. The disagreement can most probably be attributed to the fact that Quadrant D students struggle with time management. For them, the time might have been too little. Quadrant B thinkers for whom time allocation is important, might have felt that the use of time was acceptable, for example. So, the responses depended on the dominant quadrant of the respondent.

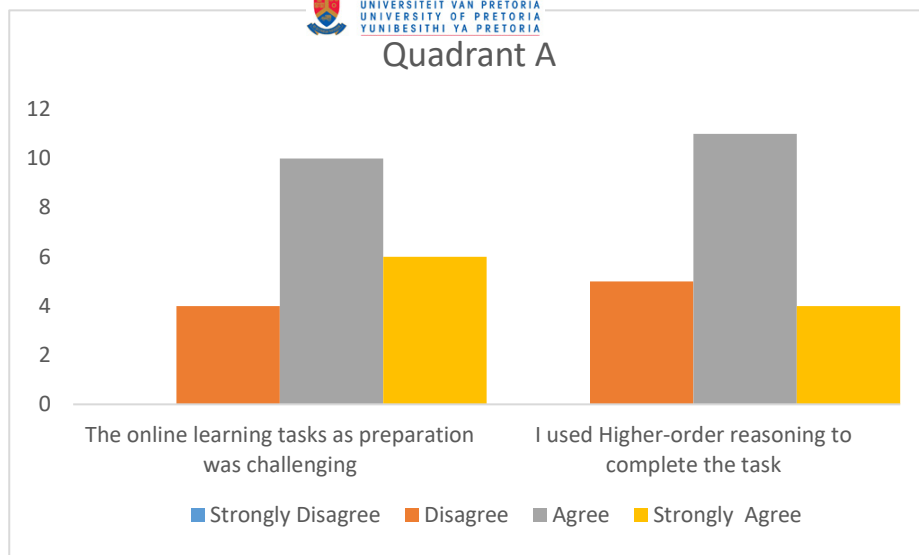
Most students (19) agreed that a basic outline was given on how the gymnastics floor routine should be presented. This is typical of Quadrant B. The students mostly agreed on the use of a discussion forum; 14 participants agreed, and one disagreed. This would accommodate students with Quadrant C preferences. The same can be deduced for those (15) who indicated that they enjoyed working in small groups. This data is similar to what was indicated in Cycle B. I believe that the students were more comfortable working in groups during Cycle B and C as they had already worked in those groups in Cycle A. By now, they were familiar with one another and used to each member of the team's approach to solving problems and executing tasks.

The participants had contradictory views on the making of the video. Three participants strongly disagreed, four participants disagreed, seven participants agreed, and six participants strongly agreed. It seems that the students that strongly disagreed and disagreed were all male students, which could indicate that they had had no prior knowledge or experience when doing a gymnastics skill, so they had more difficulty completing the learning task. Most participants agreed (16) that they could be creative during the task completion, and similar results can be seen about the design of their own routine. In contrast, 15 participants agreed and strongly agreed.

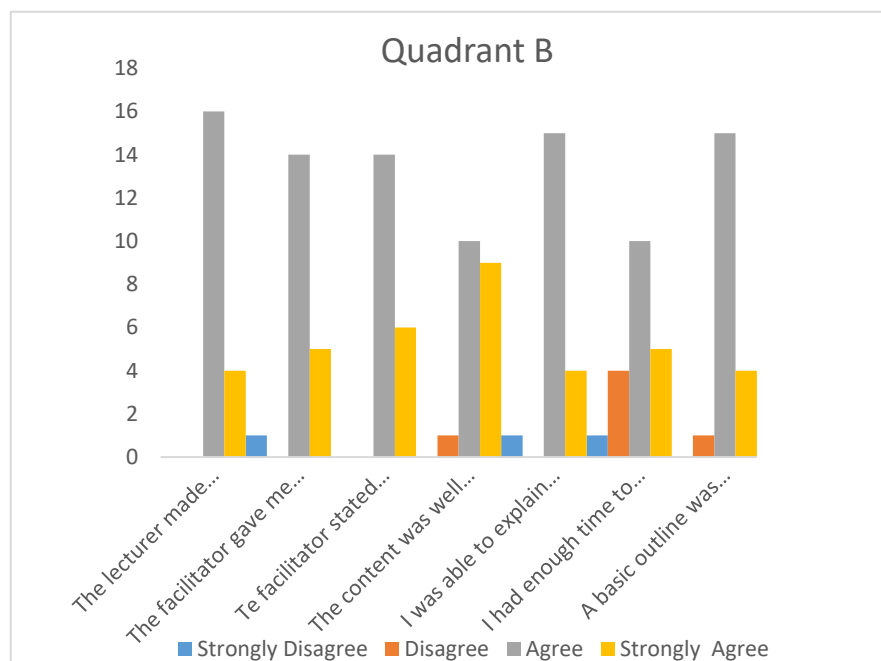
The narrative format the explanation takes above is represented in a more composed fashion using a table. The following frequency table (Table 4.6) show students' responses to the questionnaire for the hybrid learning task.

Table 4.6: Results of the feedback questionnaire before the synchronous session during Cycle C

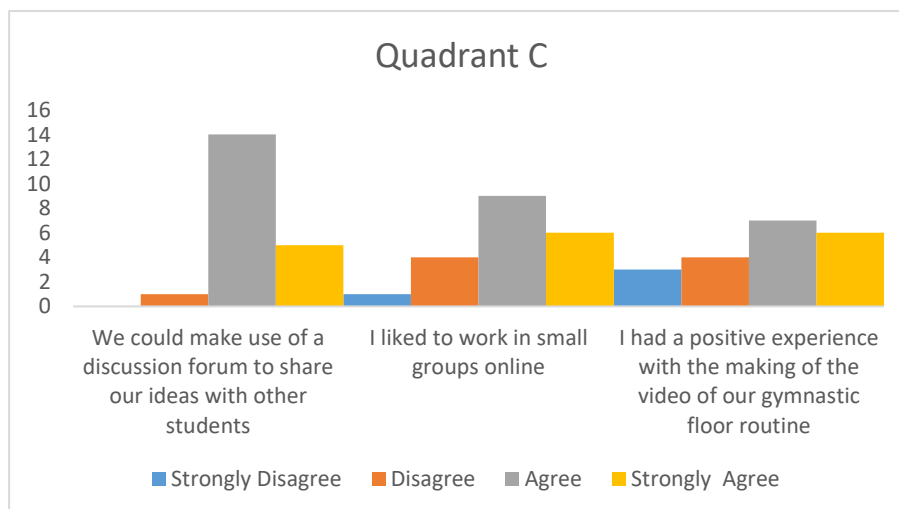
Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• The facilitator stated the outcomes of the online preparation.	Quadrant B	0	0	14	6
• I applied my knowledge to construct a video.	Quadrant D	0	1	15	4
• The facilitator gave me practical examples online, like videos, pictures and Infographics that I could use in my practice.	Quadrant B	1	0	14	5
• The online learning tasks as preparation were challenging.	Quadrant A	0	4	10	6
• I used higher order reasoning to complete the task.	Quadrant A	0	5	11	4
• The content was well structured on the online platform.	Quadrant B	0	1	10	9
• I was able to explain the floor routine step by step.	Quadrant B	1	0	15	4
• I had enough time to design our gymnastics routine.	Quadrant B	1	4	10	5
• A basic outline was given on how the gymnastics floor routine should be presented.	Quadrant B	0	1	15	4
• We could make use of a discussion forum to share our ideas with other students.	Quadrant C	0	1	14	5
• I liked to work in small groups online.	Quadrant C	1	4	9	6
• The lecturer made practical examples available online.	Quadrant B	0	0	16	4
• The lecturer made use of PowerPoint, Prezi, videos or other visual representations that I could explore online.	Quadrant D	0	0	14	6
• I had a positive experience with the making of the video of our gymnastics floor routine.	Quadrant C and D	3	4	7	6
• The learning activities helped me to be more creative by making a video.	Quadrant D	1	3	11	5
• I was able to design my own floor routine.	Quadrant D	1	4	10	5



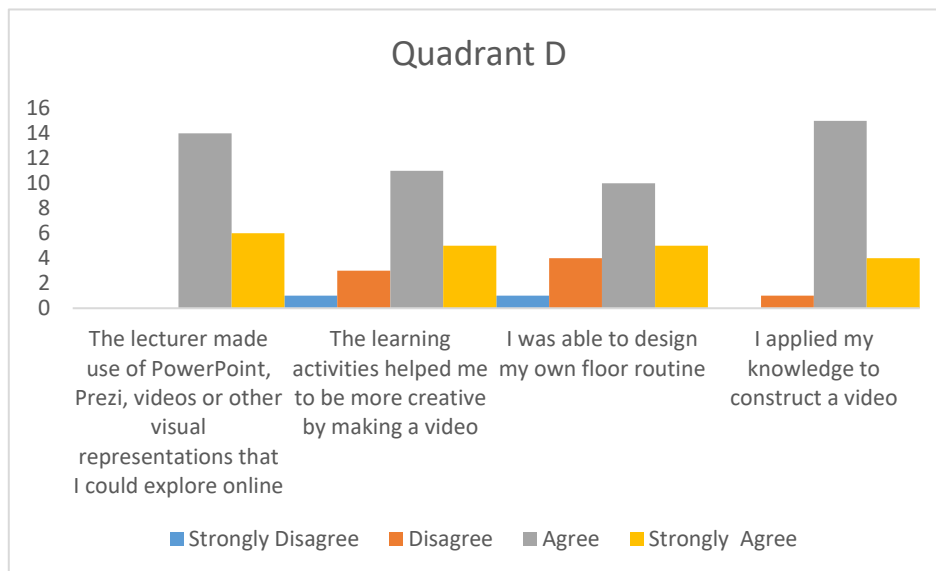
Graph 4.17: Summary of answers for Quadrant A before the synchronous session during Cycle C



Graph 4.18: Summary of answers for Quadrant B before the synchronous session during Cycle C



Graph 4.19: Summary of answers for Quadrant C after the synchronous session during Cycle C



Graph 4.20: Summary of answers for Quadrant D before the synchronous session during Cycle C

The table shows that the number of items that focused on the respective quadrants reflects high dominancy of Quadrant D. However, it should be remembered that the quadrants are integrated, and items might be associated with each learning task to a lesser or greater extent. A video can be regarded as an example of a Whole Brain® task because all the quadrants are activated when planning and making a video.

When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were equally activated during the synchronous session. Table 4.7 shows the analysis of the students' answers to the questionnaire. Holistically considered and taking into account what happened before and after the session, it might be the case that more collaboration and actions at a personal and interpersonal level, typical of Quadrant C, could be involved. In hindsight, the question should have been formulated differently, or extra questions aligned with Quadrant C should have been posed. The data set suggests that most participants (18) agreed they had a positive experience during the online synchronous session. All the participants (20) agreed that I had facilitated the content well and used practical examples. The participants (17) agreed that I stated the session's outcomes and all the participants (20) agreed that I had good knowledge about gymnastics. Four participants disagreed that the learning task was challenging, and 16 agreed. There were also different opinions on using the resource; ten disagreed and ten agreed.

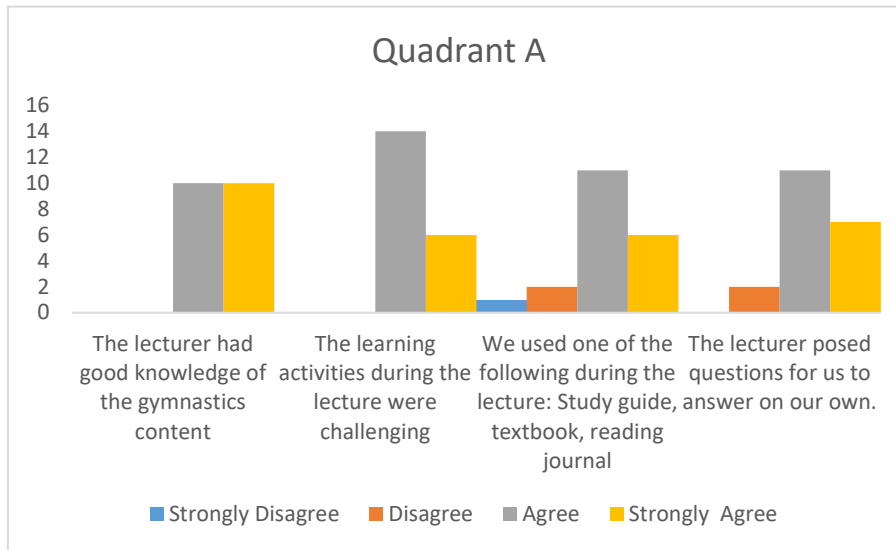
All the participants agreed that the session was well planned and structured. Participants were indifferent regarding the discipline, time, and instruction. Most participants (17) agreed that the discipline and instructions were good during class. The participants (16) agreed that the class ended on time. Most participants (19) agreed they worked in groups during the online synchronous session. All the participants agreed that the lecturer encouraged participation, and the use of practical examples were interesting. On the use of PowerPoint, Prezi, and other visual resources, most of the participants agreed that the resources were used. The participants agreed (18) that they had to solve problems by themselves and that they could be creative during the online synchronous session. Lastly, most participants (19) agreed that I shared new ideas and examples during the online synchronous session. Table 4.7 shows the results of the online synchronous session questionnaire.

Table 4.7: Results of the feedback questionnaire after the synchronous session during Cycle C

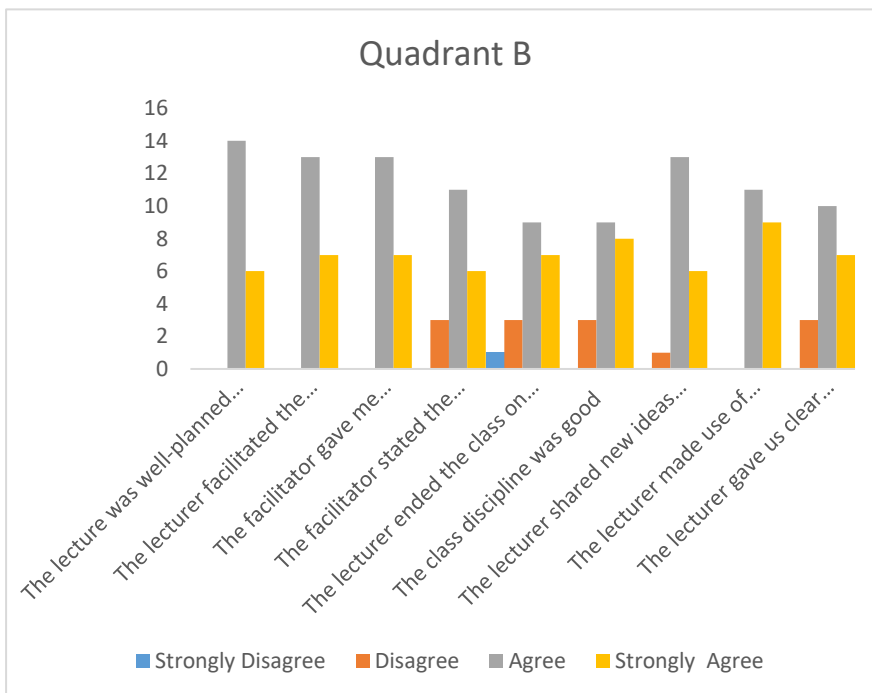
Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree		Strongly Agree	
		Disagree	Agree	Disagree	Agree
• I had a positive experience during the online class.	Quadrant C	0	2	11	7
• The lecturer facilitated the content well.	Quadrant B	0	0	13	7
• The facilitator gave me practical examples that I could use in my practice.	Quadrant B	0	0	13	7
• The facilitator stated what the outcomes of the lecture were.	Quadrant B	0	3	11	6
• The lecturer had good knowledge of the gymnastics content.	Quadrant A	0	0	10	10
• The learning activities during the	Quadrant A	0	0	14	6

lecture were challenging.					
• We used one of the following during the lecture: Study guide, textbook, reading journal.	Quadrant A	1	2	11	6
• The lecture was well-planned and structured.	Quadrant B	0	0	14	6
• The lecturer ended the class on time.	Quadrant B	1	3	9	7
• The class discipline was good.	Quadrant B	0	3	9	8
• The lecturer gave us clear instructions before we started the learning activities.	Quadrant B	0	3	10	7
• We worked in groups when discussing the content.	Quadrant C	0	1	10	9
• The lecturer encouraged class participation.	Quadrant C	0	0	10	10
• The lecture was interesting.	Quadrant D	0	0	11	9
• The lecturer made use of practical examples.	Quadrant B	0	0	11	9
• The lecturer used PowerPoint, Prezi, videos or other visual representations.	Quadrant D	0	2	11	7
• The lecturer posed questions for us to answer on our own.	Quadrant A	0	2	11	7
• The learning activities helped me to be more creative.	Quadrant D	0	1	10	9

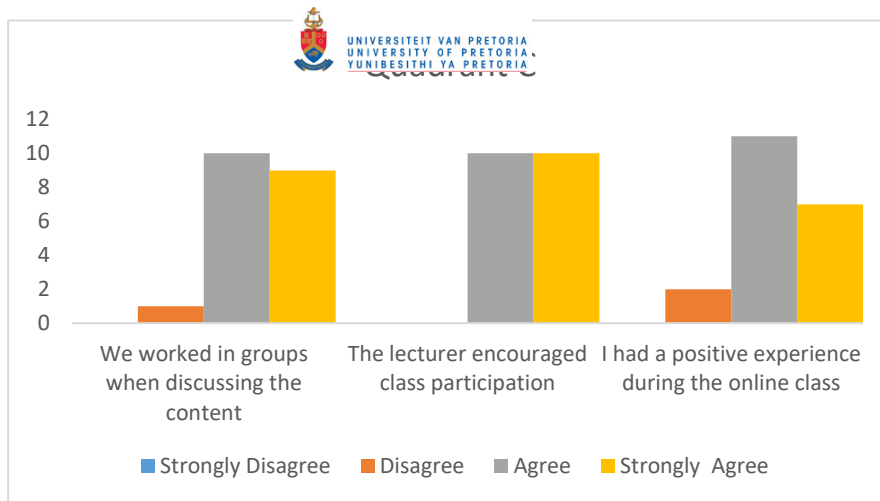
- The lecturer shared new ideas and examples.



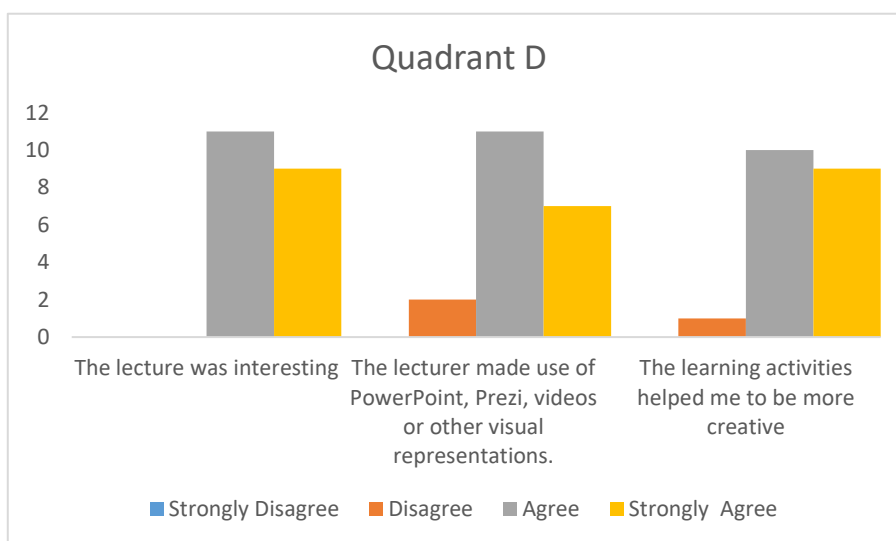
Graph 4.21: Summary of answers for Quadrant A after the synchronous session during Cycle C



Graph 4.22: Summary of answers for Quadrant B after the synchronous session during Cycle C



Graph 4.23: Summary of answers for Quadrant C after the synchronous session during Cycle C



Graph 4.24: Summary of answers for Quadrant D after the synchronous session during Cycle C

Step 4: Reflecting

I reflected on the following about Cycle C:

- a. Most students did not have practical experience of doing the four floor skills. I should have anticipated that they would struggle with this part of the learning task. I will not make any changes to the learning task but will suggest that if the students cannot do it themselves, they should use a learner or friend to demonstrate the skills and they will only help explain the skills. The learning task was a Whole Brain® task because it activated all the brain quadrants to some extent, as indicated in the previous step. The infographic worked well for this cycle. The students could also work remotely by making two videos and then combining the videos to present in class. The infographic was successful. I did not have as many queries about the learning task as with the task in Cycle B.

- b. Asking the students to send the videos to me before the online synchronous session worked much better than creating the assignment link on the LMS. The students could watch the videos before the online synchronous session on their own. Time was saved during the online synchronous session. During my reflection, I realised that not all learning needs to occur during a scheduled session. Learning can start before a learning opportunity, during the scheduled time, and after. Students can construct knowledge before, during and after a synchronous session.

Using Mentimeter as a feedback tool worked well. Mentimeter is live software that instantly shows the comments made, but is also anonymous so students felt comfortable giving positive feedback and criticism. Students gave positive feedback on the collaboration board and made good suggestions, for example, how to have better balance during the handstand. Next, I analysed each video. I made a distinction between which ones I considered poor, average or good, using the criteria that were given to the students on the infographic to complete the Whole Brain® task. Based on my assessment of the videos, I present examples – still photos taken as photo evidence. Photo evidence 9 is a still photo of a poor video completed by students. Click the link below to view the full video: https://drive.google.com/file/d/1PT-LdVaV56KdWIXAUUxWET-FF0xOR9VX/view?usp=share_link



Photo evidence 9: Evidence of a poor video

When using the infographic to assess the students' video, I considered the above as of poor quality. The most important reason for this was that the students did not follow all the instructions when making the video. The video did not include all the floor elements indicated in the infographic. The students showed the steps of the two skills performed on the video. The next photo (Photo evidence 10) is a still photo of an average video completed by students. Click the link below for the full video:

https://drive.google.com/file/d/1Ld2z9YA7TUT5q4qYpXLcjtTbgupnrF2l/view?usp=share_link



Photo evidence 10: Evidence of an average video

When using the infographic to assess the students' video, I considered the above video average because even though the students followed the instructions when making the video, they did not explicitly show the different steps of the four floor skills. The student in the video used a trampoline that was not part of the instruction. The next still photo (Photo evidence 11) is evidence of a good video. Click the link below for the full video:

https://drive.google.com/file/d/1eX2by5luY7B4PNysTPiA5FR72r6bcfDI/view?usp=share_link



Photo evidence 11: Evidence of a good video

When using the infographic to assess the students' video, I considered the above video to be good because the students followed the instructions when making the video. The video included all the steps of each floor element. The students comprehensively explained each step verbally as they executed the skill.

I ensured that making my own video worked well, so that the students could see where they made mistakes or could improve on their skill set. When asked to comment on my video, the students were rather hesitant, but after reassuring them, they were more open to give feedback. I will make my own videos to help the students have something to refer back to. The next still photo (Photo evidence 12) is evidence of the video I made doing the skills.

Click here for the full video:

https://drive.google.com/file/d/1c_cfZKAJGe7DEIsPNPzEtOdtzQLF--m4/view?usp=share_link



Photo evidence 12: A still photo of the video I made to show students how to execute the skills

- h. During the class discussion on the assessment of gymnastics skills, it became apparent that the students still lacked knowledge of the assessment of gymnastics skills. As part of the preparation for the online synchronous task, I will, in the future, let the students search for relevant literature on assessment in gymnastics that they can study so that they can better participate in class discussions and construct their own knowledge.
- i. After the synchronous online session, I watched the video recording of the session.
- j. Next, I studied the videos. I made the following observations: In the first 5 minutes of the online session, I explained how the session would be structured (Quadrant B). I also stated the learning outcomes (Quadrant B) of the session. Students had to know what was expected of them. The next 15 minutes of the session was dedicated to feedback given to their peers, which mainly activated Quadrant C. During the class discussion on my video and assessment of gymnastics skills Quadrant B and C were activated. In future I will attempt to activate Quadrant D during the online synchronous session.

- k. The first part of the questionnaire asked the students about their overall experience with the LMS platform. The second part of the feedback questionnaire focused on the different brain quadrants activated during the online and face-to-face sessions. I emailed the link to the feedback questionnaire to the participants to complete. The feedback questionnaire was rather lengthy. Therefore, I will shorten the feedback questionnaire in the future.

Step 5: Evaluation

During the online session, it was apparent that Quadrant B and C were activated mainly when the students participated. The learning task (video) they completed before the online synchronous session was a Whole Brain[®] task, as all the quadrants were activated. The students' feedback suggested that I had made the online synchronous session's outcomes clear because I stipulated what we were going to do during the online synchronous session, which was that we would use Mentimeter to give feedback on the different videos, which activated Quadrant B. The participants further agreed that the session was well structured. Before the synchronous online session, my practice had completely changed because earlier, I would spend time preparing for the online synchronous session to teach content. During the study; the students had to construct the knowledge themselves. During Cycle C, I opted to activate Quadrant A during the online synchronous session by letting students think critically about the assessment of gymnastics skills.

4.3.4 Cycle D

During Cycle D, the students had to construct knowledge on the pedagogy of teaching Educational Gymnastics as stipulated by the CAPS Document for Life Skills in the Intermediate Phase. As explained in Chapter 3, the students were required to create a lesson plan for teaching one of the following gymnastics floor skills: Handstand, cartwheel or backward roll. The forward roll was not included as there was an example lesson plan on the forward roll in the students' study material.

Pre-planning

During the pre-planning phase, I created the Zoom link on the LMS. I also created the link on Mentimeter. As mentioned in Chapter 1, my study changed because my learning opportunities had changed from in-person or face-to-face mode to online

mode because of the challenges the COVID-19 pandemic had brought about. I thus had to create a Zoom Link before the online session so that the students could access the session. I also created a Nearpod Collaboration Board to use during class for peer feedback on the lesson plans.

Step 1: Planning

I planned the following:

- a. A Whole Brain[®] task using the LMS Moodle required of the students to create a lesson plan stipulating how they would facilitate mastering one of the gymnastics floor elements in groups before the online synchronous session.
- b. During Cycle B and C, I used an assignment link and loaded videos on the LMS. Both of the methods worked well, but were still not fool proof. The assignment link took time out of the online synchronous session. Loading the videos onto the LMS worked well, but not all of the students watched the videos, or they did not submit their videos before the synchronous session. This meant that I had to show some of the videos in class. During Cycle D, I decided that the students should send their lesson plans to me, and I created a Google Slides presentation with the different groups' lesson plans.
- c. As part of the action research cycles, I planned that the students would give feedback on the different groups' lesson plans during the online synchronous session. During Cycle D, I used Nearpod software to set up a collaboration board.
- d. The students would create a lesson plan, choose one of the gymnastics floor skills and write out how they would facilitate mastering the gymnastics floor skills during Physical Education in their own practice.
- e. We would have a class discussion on each group's lesson plan and give feedback on making use of Nearpod.
- f. A short student feedback questionnaire was used to obtain responses reflecting their experience of the hybrid task and the synchronous session. I also used the feedback to make changes before the following cycle. An

example of the questionnaire is shared during the discussion of the observation step.

Step 2: Acting

- a. Students created the lesson plans for a gymnastics floor skill and emailed their lesson plans to me so that I could make the Google Slides presentation before the online synchronous session.
- b. I created a Google Slides presentation with the different lesson plans embedded in the presentation.
- c. I created the Collaboration Board on Nearpod.
- d. The students assessed their classmates' videos. An example of the feedback is presented as part of the discussion under the observation step. Students gave feedback to their peers using Nearpod, and I found this software user-friendly to use during synchronous sessions as the presenter could set the pace of the class.
- e. We had a class discussion on the pedagogy of presenting a Physical Education lesson with the specific focus on Educational Gymnastics.
- f. The students completed the feedback questionnaire I shared with them.

Step 3: Observing

I observed the following in the fourth cycle:

- a. Most of the students found the creation of a lesson plan easy. This can be attributed to the fact that the students had to complete lesson plans for Life Skills from their third year. Many students did not have as much experience with lesson plans during Physical Education. The figure (Figure 4.12) below provides evidence of the infographic that set out the Whole Brain[®] task.



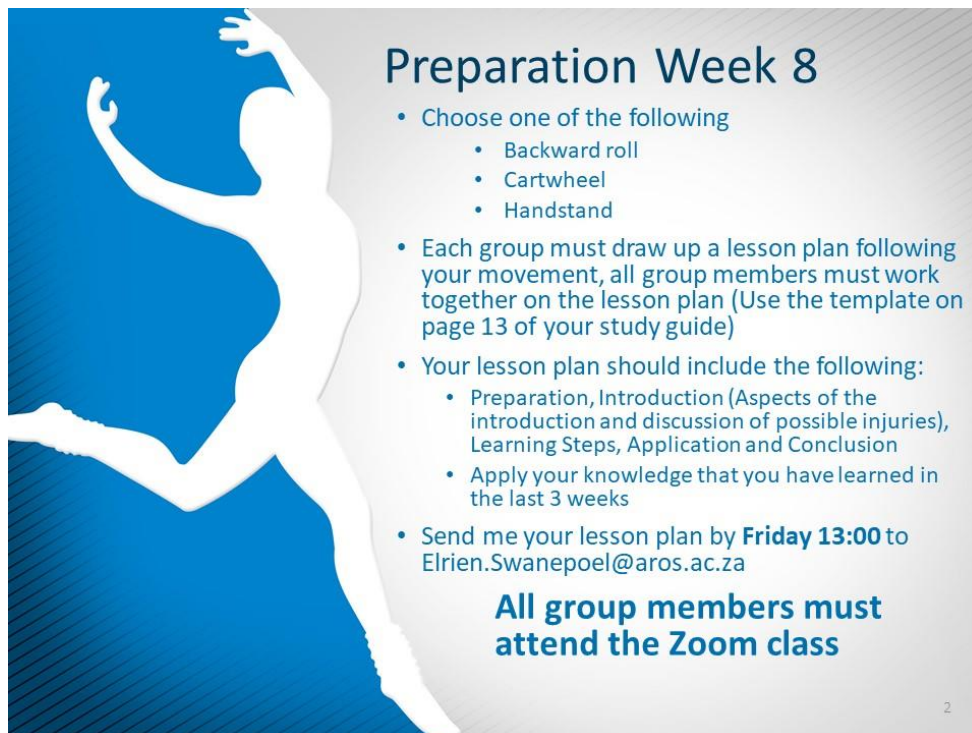
Voorbereiding Week 8

- Kies een van die volgende
 - Agteroorrol
 - Wawiel
 - Handstand
- Elke groep moet 'n lesplan opstel na aanleiding van julle beweging, alle groeplede moet saam aan die lesplan werk (Gebruik die templaot op bl 13 van jou studiegids)
- Jul lesplan moet die volgende insluit:
 - Voorbereiding, Inleiding (Aspekte van die inleiding en bespreking van moontlike beserings), Aanleerstappe, Toepassing en Afsluiting
 - Pas jou kennis toe wat jy die afgelope 3 weke geleer het
- Stuur jul lesplan **teen Vrydag 13:00** vir my na Elrien.Swanepoel@aros.ac.za

Alle groepslede moet asb die Zoom klas bywoon

1

Figure 22: Evidence of the online infographic created to explain the self-regulated learning task in Afrikaans



Preparation Week 8

- Choose one of the following
 - Backward roll
 - Cartwheel
 - Handstand
- Each group must draw up a lesson plan following your movement, all group members must work together on the lesson plan (Use the template on page 13 of your study guide)
- Your lesson plan should include the following:
 - Preparation, Introduction (Aspects of the introduction and discussion of possible injuries), Learning Steps, Application and Conclusion
 - Apply your knowledge that you have learned in the last 3 weeks
- Send me your lesson plan by **Friday 13:00** to Elrien.Swanepoel@aros.ac.za

All group members must attend the Zoom class

2

Figure 23: Translated evidence of the online infographic created to explain the self-regulated learning task

I observed that embedding the different lesson plans in a Google Slides presentation before the online synchronous session worked well because the students could assess each group's lesson plan at the same time, and the students did not have to spend time reading through all the lesson plans before

the online synchronous session that saved them time in preparing for the online synchronous session. The following screenshot (Photo evidence 13) is a still photo of the online synchronous session where students presented their lesson plans. Click here to view the full online synchronous session: https://drive.google.com/file/d/1HWUXwScaRJkMugz67FBbHkdxbrCgXHgK/view?usp=drive_link

- b. The following figure provide photo evidence of the students giving one another feedback via Nearpod (Photo evidence 14). I observed that the students gave constructive criticism – for example, what should be included during the warmup stage of the lesson plan. I think the students were rather more critical of the lesson plan because they were more knowledgeable about the outline of a lesson plan. The following link is a link to the Nearpod presentation: https://drive.google.com/file/d/1pTZMmid1n8OuxQDk4RTyS_gEXqb1tmgY/view?usp=share_link

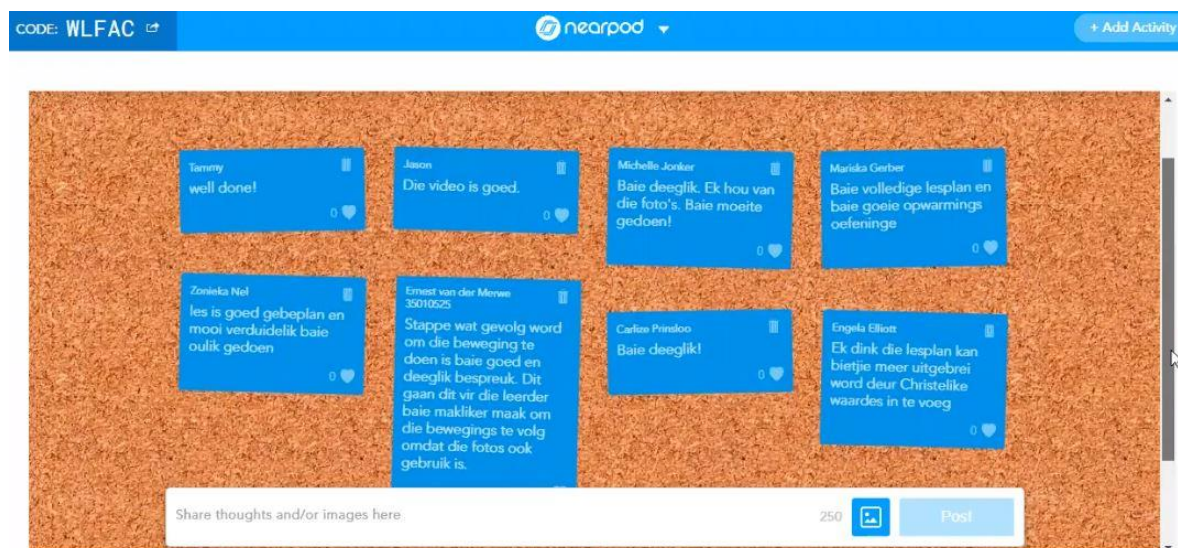


Photo evidence 14: Screenshot of the feedback given to the different groups using Nearpod.

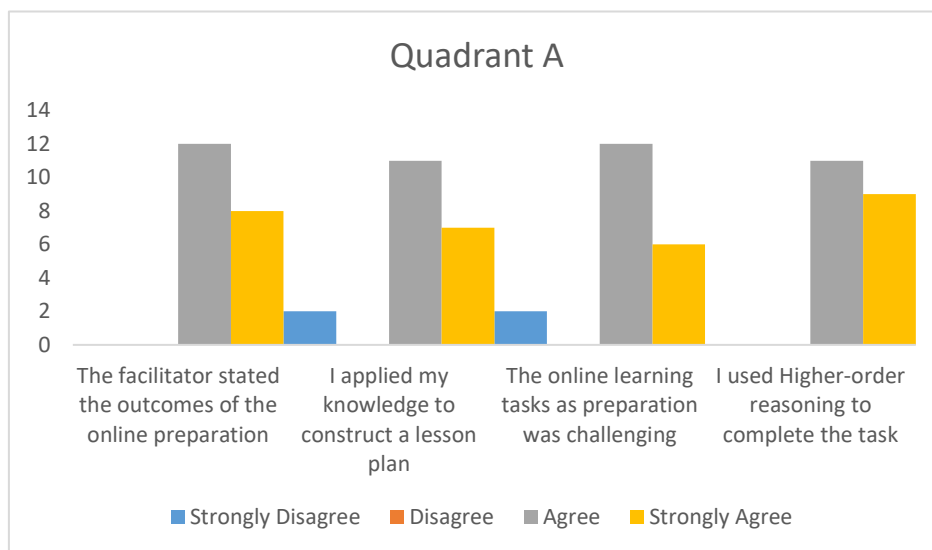
When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were activated during the learning task. Table 4.8 shows the analysis of the students' answers to the questionnaire. The data set suggests that most participants (12) agreed that I had given clear instructions regarding the learning tasks. All the participants (20) agreed that the learning task was challenging, and they also agreed that extra resources were provided on the online platform. Most participants (17) indicated that the content was structured and visual;

infographics were used online. However, the students agreed on the time they had to complete the task and the use of a discussion forum. Most participants (15) enjoyed working in small groups. Most participants agreed that the lecturer used visual resources and practical examples. The participants agreed that they enjoyed creating their own lesson plan. Most of the students agreed that they could use their creativity during the task completion, but not all the participants agreed that they could design their own lesson plans.

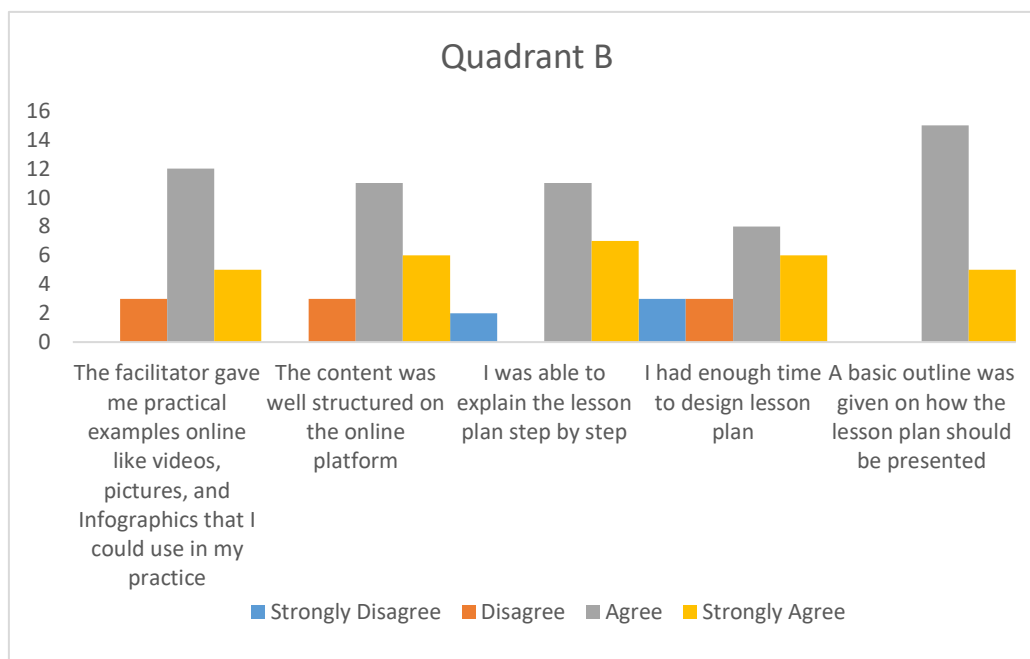
Table 4.8: Results of the feedback questionnaire before the synchronous session during Cycle D

Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• The facilitator stated the outcomes of the online preparation.	Quadrant A	0	0	12	8
• I applied my knowledge to construct a lesson plan.	Quadrant A	2	0	11	7
• The facilitator gave me practical examples online, like videos, pictures and Infographics that I could use in my practice.	Quadrant B	0	3	12	5
• The online learning tasks as preparation were challenging.	Quadrant A	2	0	12	6
• I used higher order reasoning to complete the task.	Quadrant A	0	0	11	9
• The content was well structured on the online platform.	Quadrant B	0	3	11	6
• I was able to explain the lesson plan step by step.	Quadrant B	2	0	11	7
• I had enough time to design a lesson plan.	Quadrant B	3	3	8	6
• A basic outline was given on how the lesson plan should be presented.	Quadrant B	0	0	15	5
• We could make use of a discussion forum to share our ideas with other students.	Quadrant C	0	3	12	5
• I liked to work in small groups online.	Quadrant C	3	2	11	4
• The lecturer made practical examples available online.	Quadrant C	0	5	10	5

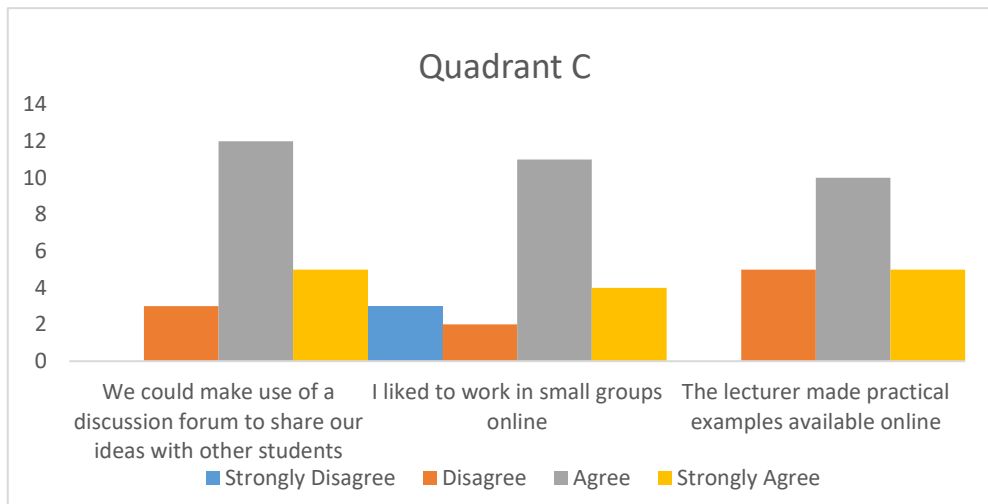
• The lecturer made use of PowerPoint, Prezi, videos or other visual representations that I could explore online.	Quadrant D	2	0	11	7
• I had a positive experience designing our lesson plan.	Quadrant D	0	2	11	7
• The learning activities helped me to be more creative by designing a lesson plan.	Quadrant D	0	2	11	7
• I was able to design my own lesson plan.	Quadrant D	2	0	11	7



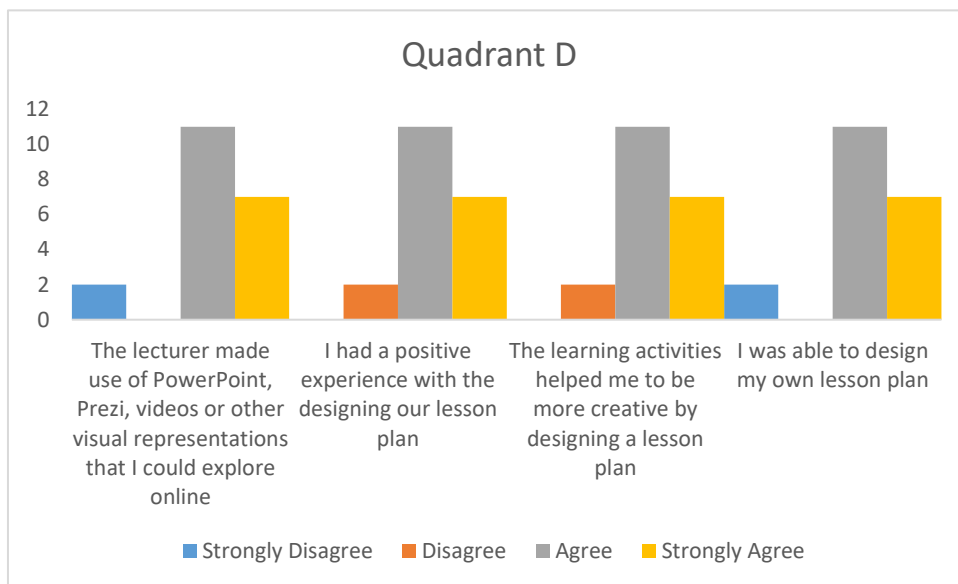
Graph 4.25: Summary of answers for Quadrant A before the synchronous session during Cycle D



Graph 4.26: Summary of answers for Quadrant B before the synchronous session during Cycle D



Graph 4.27 Summary of answers for Quadrant C before the synchronous session during Cycle D



Graph 4.28: Summary of answers for Quadrant D before the synchronous session during Cycle D

When analysing the feedback given by students, the conclusion can be drawn that all the quadrants were equally activated during the synchronous session. Table 4.9 show the analyses of the students' answers to the questionnaire. Holistically considered and taking into account what happened before and after the session, it might be the case that more collaboration and actions at a personal and interpersonal level, typical of Quadrant C, could be involved. In hindsight, the question should have been formulated differently, or extra questions aligned with the Quadrant C should have been posed. The data set suggests that all participants agreed they had a positive experience during the online synchronous session, that I facilitated the content well, and that I used

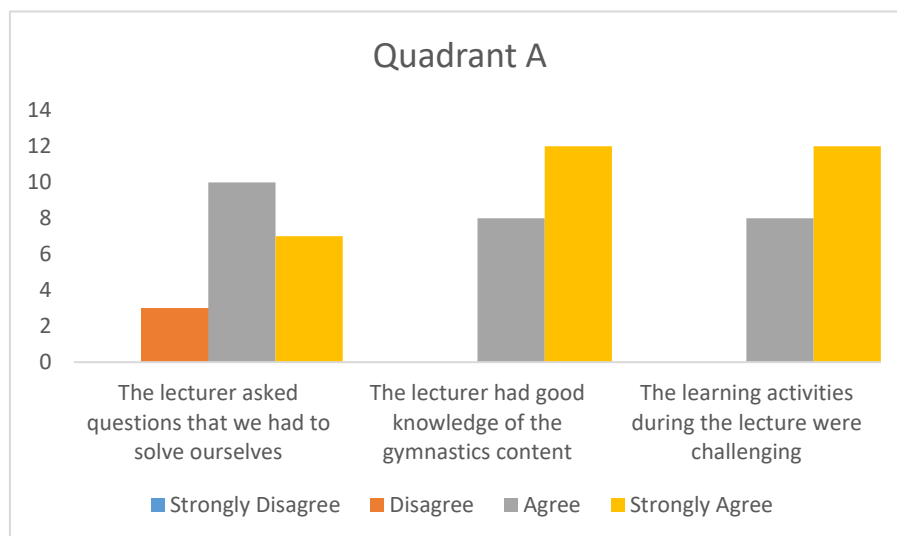
practical examples. All the participants agreed that I had stated the session's outcomes and had good knowledge about gymnastics. All the participants agreed that the learning activities were challenging and that the session was well-planned and structured. Most participants agreed that the discipline and instruction given were good during class. The participants (12) agreed that the class ended on time.

All participants agreed that they worked in groups during the online synchronous session. They agreed that the lecture encouraged participation. It as well as the use of practical examples was interesting. On the use of PowerPoint, Prezi, and other visual resources, most of the participants agreed that the resources were used. The participants agreed (17) that they had to solve problems by themselves and that they could be creative during the online synchronous session. Lastly, all participants agreed that I shared new ideas and examples during the online synchronous session. Table 4.9 is summary of the student's answers to the questionnaire.

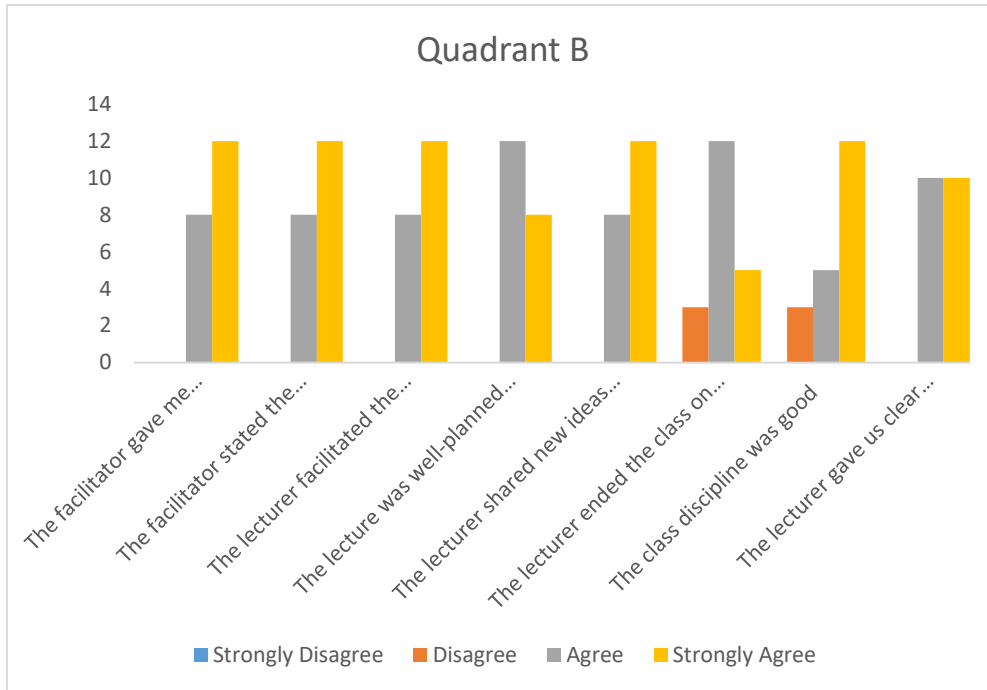
Table 4.9: Results of the feedback questionnaire after the synchronous session during Cycle D

Items	Dominant Quadrant	Student response (number)			
		Strongly Disagree	Disagree	Agree	Strongly Agree
• I had a positive experience during the online class.	Quadrant C	0	0	10	10
• The lecturer facilitated the content well.	Quadrant B	0	0	8	12
• The facilitator gave me practical examples that I could use in my practice.	Quadrant B	0	0	8	12
• The facilitator stated what the outcomes of the lecture were.	Quadrant B	0	0	8	12
• The lecturer had good knowledge of the gymnastics content.	Quadrant A	0	0	8	12
• The learning activities during the lecture were challenging.	Quadrant A	0	0	8	12
• We used one of the following during the lecture: Study guide, textbook, reading journal.	Quadrant D	0	0	8	12

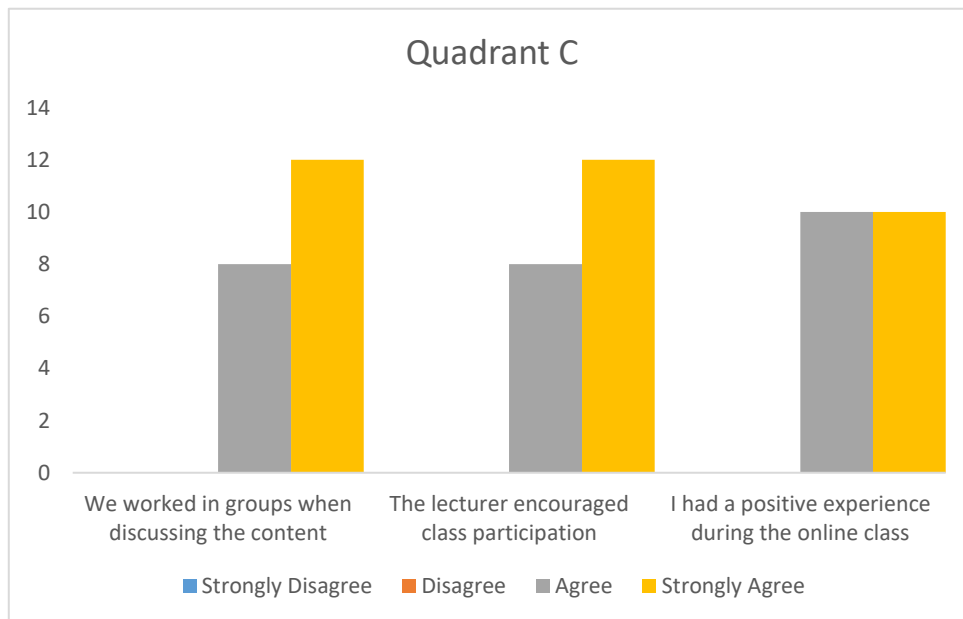
• The lecture was well-planned and structured.	Quadrant B	0	0	12	8
• The lecturer ended the class on time.	Quadrant B	0	3	12	5
• The class discipline was good.	Quadrant B	0	3	5	12
• The lecturer gave us clear instructions before we started the learning activities.	Quadrant B	0	0	10	10
• We worked in groups when discussing the content.	Quadrant C	0	0	8	12
• The lecturer encouraged class participation.	Quadrant C	0	0	8	12
• The lecture was interesting.	Quadrant D	0	0	15	5
• The lecturer made use of PowerPoint, Prezi, videos or other visual representations.	Quadrant D	0	0	10	10
• The lecturer asked questions that we had to solve ourselves.	Quadrant A	0	3	10	7
• The learning activities helped me to be more creative.	Quadrant D	0	0	8	12
• The lecturer shared new ideas and examples.	Quadrant B	0	0	8	12



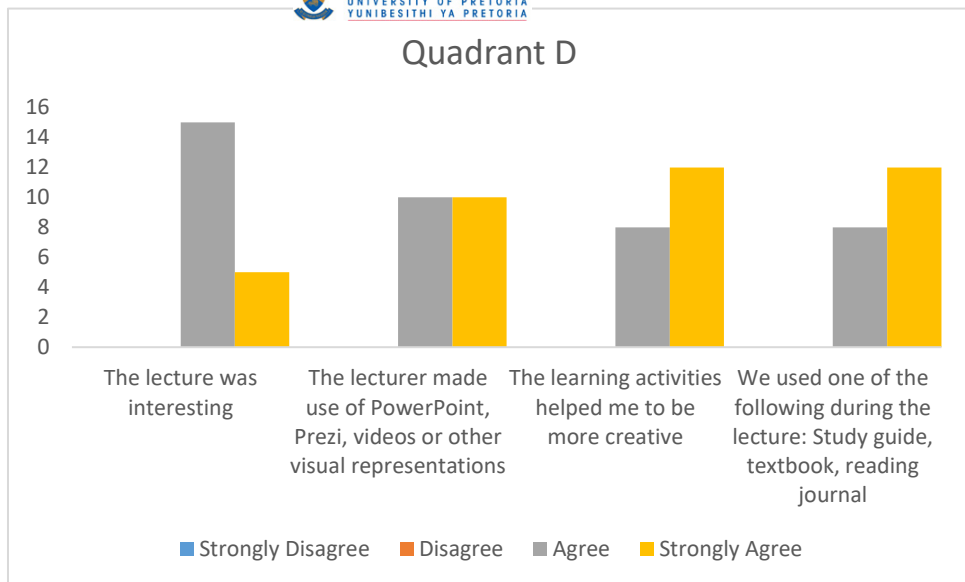
Graph 4.29: Summary of answers for Quadrant A after the synchronous session during Cycle D



Graph 4.30: Summary of answers for Quadrant B after the synchronous session during Cycle D



Graph 4.31: Summary of answers for Quadrant C after the synchronous session during Cycle D



Graph 4.32: Summary of answers for Quadrant D after the synchronous session during Cycle D

Step 4: Reflecting

I reflected on the following:

- a. The infographic worked well. This statement can be made as the students indicated in the feedback questionnaire that the instruction using the infographic was straightforward.

- b. During Cycle B and C, I used an assignment link and loaded videos on the LMS. Both of the methods worked well, but were still not fool proof. The assignment link took time out of the online synchronous session. The students sent their lesson plans to me via email and it worked well.

- c. Using the Nearpod collaboration board worked well, as students could give instant feedback to their peers. This also showed that the students applied their knowledge of lesson planning when assessing one another's lesson plans.

- d. When assessing the different lesson plans created by the students, I considered the following lesson plans to be poor (Photo evidence 14), average (Photo evidence 15) and good (Photo evidence 16 – 19).

I considered the following lesson plan (Photo evidence 14) to be poor when using the lesson plan assessment rubric for marking of lesson plans during the

students' WIL period. This group's lesson plan was the exact template given in the study guide. The students' lesson plan was elementary and referred to the skill in general and not specifically to the gymnastics floor element in question. The first element required during a physical education lesson is the warm-up. The students wrote that they would do warm-up exercises, but they were not specific regarding the warm-up exercises that were needed when performing a cartwheel.

The introduction was not exciting and previous knowledge of the element had not been determined. The students included possible injuries that could occur, which they would caution the learners against. This is not necessary for Grade 5 learners. The presentation of the floor element was not specific. The steps given were too general, and the floor element was not broken up into the correct steps. The climax of the lesson, where the learner should have mastered the skill, was not described in detail. The lesson's conclusion was not described in detail. There was no summary of the content, only indication of the cool-down exercises. The following screenshot (Photo evidence 14) is an example of a poor lesson plan. Click here to view the full lesson plan:

<https://drive.google.com/file/d/1a7DazYdSxJUTBs2XHcTdZN9EcbI5tAw/view?usp=sharing>

Datum: 24 September 2020

Duur van die les: 30 min

Graad: Gr. 5

Hoeveelheid leerders: 42

Deel 1:

Voorbereiding

- Navorsing: stappe hoe om 'n wawiel uit te voer. Moontlike beserings
- Lesbeplanning: Inleiding, bespreking van moontlike beserings, stappe word aan leerders gewys, leerders warm op, leerders probeer self die oefening en dan word daar 'n afwarming aktiwiteit met hulle gedoen.
- Apparate benodig: gimnastiek mat/plat sagte oppervlakte

Deel 2:

Inleiding:

- Leerders word blootgestel aan die wawiel.
Daar word bepaal hoeveel leerders weet hoe om 'n wawiel te doen. Wie het al gehoor van 'n wawiel. Wie het nog glad nie probeer om 'n wawiel uit te voer nie.
Daar word ook hersiening gedoen van die vorige les(handstand) en sy stappe.
Leerders begin met opwarming en strek oefeninge.
Behandeling van moontlike beserings word bespreek:
 1. Verkeerde plasing van hande en voete tydens die uitvoer daarvan
 2. Arms en armspiere
 3. Landing

Deel 3:

Aanbieding

Hier word 'n fondament gelê vir 'n vaardigheid wat in die liggaam van die les behandel gaan word.

- Aanleer van wawiel:

Leerders word stap vir stap gewys hoe om 'n wawiel te doen.

1. Bepaal dominante been/voet
2. Draai liggaam skuins teen 45 grade
3. Sit dominante voet uit.
4. Lig arms op in die lug.
5. Gaan af in posisie om wawiel uit te voer
6. Land met bene reguit.

Daarna doen die leerders die stappe saam die onderwyser(hulpverlening kan hier toegepas word vir die leerders wat sukkel).

Leerders doen dan die stappe op hulle eie sodra hul dit reg kry om 'n wawiel te doen sonder hulpverlening.

Deel 4:

Liggaam: Toepassing en klimaks

- Leerders gaan deur die stappe en wys dit vir die onderwyser as deel van informele assessering.
Leerders kan dan groepies van twee of drie vorm en die vooroorrol, handstand en wawiel gebruik om hulle eie roetine vir die res van die klas te wys.

Deel 5:

Afsluiting

Leerders doen 'n afwarmings oefening

Photo evidence 13: Screenshot of a poor lesson plan

I considered the following lesson plan to be average when using the lesson plan assessment rubric used for marking lesson plans during the students' WIL period. This group's lesson plan was the exact template given in the study guide. The students' lesson plan was basic and referred to the gymnastics floor element, specifically the handstand. The first element required during a Physical Education lesson is the warm-up. The students wrote that they would do warm-up exercises. The warm-up exercise that was specified was star jumps, which helped with the cardiovascular system warm-up but did not focus

at all on flexibility, which had to be included when doing Educational Gymnastics.

The introduction was not exciting, and previous knowledge of the element had not been determined. The students included possible injuries that could occur, which they would caution the learners against. This was unnecessary for Intermediate Phase learners; the knowledge of possible injuries and their treatment is relevant for the teacher only. The presentation of the floor element was specific. The steps given were correct but could be broken up into smaller steps. The climax of the lesson where the learner should have mastered the skill was described, but more detail could have been given. The lesson's conclusion was described in detail and included a summary of the content and the cool-down exercises, but the exercises were not explicitly described. The following screenshot (Photo evidence 15) is an example of an average lesson plan. Click here to view the full lesson plan:

https://drive.google.com/file/d/1CmmlXa_2KcvzWgPPnY-AIB8WOCVZ7WLL/view?usp=sharing

Voorbereiding.

In die voorbereiding fase gaan die onderwyser navorsing doen oor die handstand. Die onderwyser gaan na die navorsing 'n lesplan saamstel vir die onderrig van die handstand. Die aparate wat benodig word vir hierdie les is joga matte en 'n noodhulp tassie.

Inleiding.

Die onderwyser gaan die les begin deur aan die leerders bekend te maak dat hulle gaan leer hoe om 'n handstand te doen. Die onderwyser gaan vir die leerders basiese noodhulp wys wat hulle moet doen wanneer hulle hulself beseer tydens die aanleer van die handstand. Die leerders gaan 'n opwarming oefening doen waar hulle vir een minuut lank ster spronge doen.

Aanbieding.

Die onderwyser gaan die handstand demonstreer. Die onderwyser gaan daarna die stappe verduidelik en dan vir die leerders die handstand stap vir stap aanleer. Nadat dit gedemonstreer is gaan die leerders die geleentheid kry om dit uit te voer.

- Stap 1: Staar in 'n "lunge" posisie.
- Stap 2: Skop bene op tot in 'n handstand.
- Stap 3: Laat sak een been op 'n slag en dan land weer in 'n "lunge" posisie.

Toepassing.

Leerders gaan in groepe van twee ingedeel word en die aanleerstappe van die handstand inoefen. Leerder 1 gaan die handstand uitvoer en leerder 2 gaan leerder 1 ondersteun deur te help om sy of haar voete in die lug te kry. Nadat leerder 1 die handstand geoefen het gaan die leerders omruil en leerder 2 gaan die handstand inoefen terwyl leerder 1 hom/haar ondersteun.

Afsluiting.

In die afsluitings fase gaan die leerders 'n afwarming oefening doen waar hulle die spiere in hulle liggaam gaan strek. Die leerders gaan 'n refleksie sessie saam met die onderwyser hê waar die onderwyser aan die leerders gaan vra wat was vir hulle lekker en wat was nie. Die onderwyser gaan ook vir die leerders vra of hulle gesukkel het om die handstand aan te leer sodat die onderwyser kan reflekteer oor die moeilikheidsgraad van die les en of die onderwyser kan aanpassings maak in die les.

Photo evidence 14: Screenshot of an average lesson plan

The following lesson plan is considered good when using the lesson plan assessment rubric used for marking lesson plans during the students' WIL period. This group's lesson plan was an extended version of the template given in the study guide. The students' lesson plan was comprehensive and included many elements not included in the previous lesson plans. The students started the lesson plan with research. In this step, they included research they had done on the learning steps of the cartwheel as well as the best teaching strategy to use when teaching the cartwheel to learners. In the following section, the students explained the learning steps for the cartwheel. The students continued the lesson plan with the learning outcomes as well as apparatuses that were needed, and they explained how they were going to assess the element at the end of the lesson. The students then explained the values that were going to be taught to the learners.

The last part of the lesson plan focused on the presentation of the gymnastics element. The introduction included assessing the learners' previous knowledge of the cartwheel. The students included the warm-up as part of the introduction. This lesson plan included the individual warm-up exercises the learners would be doing before the execution of the cartwheel. The steps given were correct and included the possible support that the teacher could give. The climax of the lesson, where the learner should master the skill, was described in detail. The lesson's conclusion was not included in the lesson plan. The cool-down exercises were not included. The following screenshots (Photo evidence 16, 17, 18 and 19) is an example of a good lesson plan. Click here for the full lesson plan: https://drive.google.com/file/d/1dDVP_I026yVPTEWEQKN0mi2iic0fq7ND/view?usp=sharing

Lesplan vir Gimnastiek - Wawiel

Deel 1: Voorbereiding

1.1 Navorsing:

Navorsing is gedoen oor die aanleer stappe van die wawiel en ondersoek die metode om dit vir die leerders aan te leer.

Voor die leerder kan leer hoe om 'n wawiel te doen moet die onderwyser die leerder se dominante kant identifiseer. Dit sal nie altyd noodwendig die kant wees waarmee die leerder skryf nie. Om die leerder se dominante kant te kry moet die leerder eerste met sy voete skouerlengte uitmekaar staan. Die leerder word gevra om sy hande bo sy kop uit te strek. Laat sak hulle effens, nog uitgerek, totdat hulle die ekwivalent van die posisie tien en twee op 'n horlosie bereik. Die leerder swaai sy arms na links en lig sy regterbeen op. Plaas dit neer en herhaal dit met die teenoorgestelde rigting deur sy arm na regs te swaai en sy linkerbeen op te lig. Vra watter skuif gemakliker voel. Deur dit te doen kan die leerder bepaal wat sy dominante kant is. Die volgende instruksies gaan wees vir leerders wat se linkerkant hul dominante kant is.

Die aanleerstappe van 'n wawiel:

1. Plaas jou gewig op die een been, strek jou ander been voor jou uit op die vloer (bv: staan op Regs, strek Links voor jou uit).
2. Plaas jou arms reguit uitgestrek bo jou kop.
3. Plaas hande een vir een op die vloer, op 'n reguit lyn (bv: eers Links dan Regs).
4. Terwyl jy jou linker hand gaan neer sit skop jy met jou regter been op.
5. Wanneer jy altwee hande op die vloer geplaas het gaan jou bene opskop in 'n middel split sodat jou bene oor swaai van die een kant tot by die ander kant.
ONTTHOU: jou hande mag nie rond beweeg op die vloer nie, hou hulle stil waar jy hulle plaas.
6. Wanneer jy klaar jou bene oorgeswaai het gaan jy regter voet neer sit terwyl jy jou linker hand optel en dan die ander hand en voet agterna volg.
7. Bring jou lyf regop deur met jou hande van die vloer af te stoot (staan stewig weer op twee voete, moet nie gaan sit nie).

1.2 Lesbeplanning:

Sluit alle faktore in by die beplanning van die gimnastiek les en verseker dat jy voorbereid is vir alle aspekte van 'n gimnastiek- of bewegingsles.

Photo evidence 15: Screenshot of Part 1 of a good lesson plan

Uitkomst:

Na afloop van die les moet die leerders instaat wees om;

- Die leerders verstaan wat 'n wawiel is en hoe om die beweging uit te voer op 'n veilige wyse.
- Die belangrikheid van opwarming en afwarming tydens 'n praktiese les te verstaan en op hul eie kan doen.
- Dele van die lyf en spiere te kan uitwys wat die wawiel oefen.

Apparate benodig:

- Sagte mat om te voorkom dat daar kop en nek beserings kan voorkom gedurende die behandeling van die les.

Assessering:

Tipe assessering: Formatiwe assessering
Assesseringsmetode: Onderwysassessering
Assesseringstechniek: Aktiwiteit
Assesseringsinstrument: Rubriek

Aanmoediging:

Leerders gaan aangemoedig word deur hul onderwyser en mede-klasmaats om aan te hou probeer indien hulle dit nie dadelik reg kry nie. Leerders gaan ook aangemoedig word om deel te neem.

Christelike waardes:

Elkeen van ons het talente van God af gekry en is dus ons verantwoordelikheid om ons talente te beoefen en te ontwikkel. In hierdie les is dit belangrik om hulpvaardig te wees teenoor ander deur hulle te help, ondersteun en aan te moedig waar ons kan.

Photo evidence 16: Screenshot of Part 2 of a good lesson plan

Deel 2: Inleiding

2.1 Bepaling van voorkennis:

Voordat die wawiel aan die leerders geleer word gaan daar vir die leerders gevra word of hulle weet wat 'n wawiel is. Hier kan die onderwyser vasstel of die leerders bekend is met die onderwerp wat aan hulle verduidelik gaan word. Indien die leerders verward is kan daar 'n video gewys word aan die klas wat 'n wawiel uitbeeld. Leerders het seker al tydens pouse 'n wawiel probeer doen as hulle buite speel hulle weet moontlik net nie die naam van die beweging nie.

2.2 Bespreking van agtergrondinligting:

Die verduideliking van 'n wawiel kan begin met 'n video wat dit uitbeeld. Daarna kan daar vir die leerders verduidelik word waar 'n wawiel orals uitgevoer word. In gimnastiek, akrobaat, verskillende dans style en "cheerleading" word die wawiel gebruik. Hierdie eenvoudige maar effektiewe beweging vorm deel van baie mededingende roetines.

Daar moet ook aan die leerders verduidelik word hoe belangrik opwarming en afwarming is tydens die les. Wat baie lekker is van hierdie beweging is dat daar nie apparate is wat nodig is nie. Al wat nodig is, is die leerder om die beweging uit te voer met die nodige spasie.

2.3 Opwarming:

Die leerders gaan in 'n groot sirkel staan waar hulle wyd verspreid is en nie ander maats kan raak nie. Die opwarming gaan begin by die enkels en gaan opbeweeg na die nek toe.

1. Leerders gaan enkels rol na beide kante toe.
2. Leerders gaan plat sit op die vloer met hul bene reguit voor hul uitgestrek en gaan dan hul tone raak vir 10 sek en rus vir 5 sek. Hierdie gaan so 3 keer herhaal word.
3. Leerders gaan regop staan met hul bene oop (skouer breedte van mekaar). Dan gaan hul na die een kant toe 'lunge' terwyl die een been gebuig is en die ander een reguit is, verander dan kante.
4. Leerders gaan hul enkele na hul boud toe trek en dan hul knieg na hul maag toe trek. Elke been word 2 keer herhaal.
5. Leerders gaan hul regter arm op hul sy sit en dan met hul linker arm oor lê na die regter kant toe. Ruil arms en strek dan die ander sy.
6. Swaai arms voorentoe en agtertoe en strek dan albei deur dit kant toe te trek.
7. Beweeg jou nek net voorentoe en agtertoe en dan kante toe (moenie nek rol nie).

Photo evidence 17: Screenshot of Part 3 of a good lesson plan

Deel 3: Aanbieding

Voor die leerders wegval om die bewegings te doen moet die leerders klaar opgewarm wees. Hierdie gaan verhoed dat daar enige ernstige beserings kan voorkom tydens die voltooiing van die les se aktiwiteite.

Die onderwyser kan voor die klas staan en prakties wys hoe 'n wawiel gedoen word. Die leerders moet ook verstaan dat 'n wawiel uit verskillende komponente bestaan. Hierdie komponente moet eers ingeoefen word voordat die leerders die volledige beweging kan doen wat die wawiel is. Die onderwyser kan elke komponent vir die leerders prakties wys maar dit moet ook stadig gedoen word dat die leerders dit makliker kan volg.

Voor die leerders die wawiel self doen moet daar eers ondersteuning gebied word en soos wat dit ingeoefen word, word die hulp stelselmatig verminder.

Deel 4: Liggaam: Toepassing en Klimaks

In die vorige les was die aanleer stappe met die leerders behandel. Leerders gaan dit wat in die vorige les geleer en behandel was moet toepas.

Na die aanleerstappe suksesvol ingeoefen is en leerders verstaan die metode kan die leerders die volle beweging uitvoer.

Aktiwiteit:

Die leerders gaan 'n praktiese aktiwiteit uitvoer wat geassesseer word volgens 'n rubriek. Die leerder moet eers toon watter spiere opgewarm moet word voor hulle die bewegings kan doen. Die leerder moet dan die beweging doen voor die klas. Die onderwyser kan die leerder assesseeer deur 'n punt uit 5 te gee vir die uitvoering van die beweging.

Photo evidence 18: Screenshot of Part 4 of a good lesson plan

Step 5: Evaluation

During the online session, it was apparent that Quadrant B and C were activated mainly when the students participated. The learning task (lesson plan) they completed before the online synchronous session was a Whole Brain[®] task, as all the quadrants were activated. The students' feedback suggested that I had made the online synchronous session's outcomes clear because I stipulated what we were going to do during the session, which was that we would use Nearpod to give feedback on the different videos, which activated Quadrant B. The participants further agreed that the session was well structured. Before the synchronous online session, my practice had completely changed because earlier, I would spend time preparing for the online synchronous session to teach content. During the study the students had to construct the knowledge themselves. During Cycle C, I opted to activate Quadrant A during the online synchronous session by letting students think critically about the assessment of gymnastics skills.

4.4 CONCLUSION

In Chapter 4, I shared the analysis of the Whole Brain[®] learning tasks given to the students in each cycle of the action research study. I included photo evidence of the different Whole Brain[®] tasks and screenshots of the online synchronous sessions. Lastly, I used the results of the feedback questionnaires the students completed after doing the Whole Brain[®] task after the synchronous session. In the next chapter, I will introduce the analysis of my conclusions.

CHAPTER 5: FINDINGS AND CONCLUSIONS

5.1 INTRODUCTION

In this chapter, I report on the findings resulting from my study. Answers to the research questions as set out in Chapter 1, are offered and discussed. I integrated the data analysis in Chapter 4 with the literature and theoretical framing in Chapter 2 to indicate the alignment between the respective chapters.

5.2 FINDINGS AND DISCUSSION OF RESEARCH QUESTIONS

In this section, I present an answer to the main research question and the two sub-research questions stated in Chapter 1.

5.2.1 The main research question

How can implementing a Whole Brain[®] hybrid mode of learning contribute to transforming my teaching practice?

The essence of the answer to this question can be derived from the five steps of the respective action research cycles. Owing to the constant observation, reflection and evaluation that took place during the four research cycles and the changes made based on the data and insight gained after each cycle, my teaching practice was transformed. The transformation included implementing constructivist Whole Brain[®] hybrid learning as my ontological stance. During my assessment of students during their work-integrated learning period in schools, it was evident that the student teachers did not make use of a Whole Brain[®] approach to facilitating learning. My ontological outlook was that of a cyclical process where the transformation of one's own practice is constant. Part of my transformed practice was using the Whole Brain[®] hybrid tasks that my students performed. During the continuous data collection per cycle, the questionnaires that the participants completed indicated that they could successfully complete the Whole Brain[®] learning tasks that were given as preparation for the online synchronous sessions. This can be seen in the frequency table (Figure 4.1) in Chapter 4. Successfully completing each task in a

Whole Brain[®] hybrid mode indicates that my teaching practice was transformed, as I had not made use of Whole Brain[®] learning tasks in the previous practice.

5.2.1 The sub-research questions

In the following section, I explain how I opted to implement the facilitating of Whole Brain[®] hybrid learning. I explore how I transformed my practice and nurtured self-regulated learning by the students.

5.2.1.1 How can I successfully facilitate Whole Brain[®] hybrid learning through online synchronous and asynchronous sessions to transform my teaching practice?

I used the five steps of each cycle of the action research spiral to answer the first sub-research question. Constant observation, reflection and evaluation took place during the four research cycles. Based on the outcome of each step and new insights gained during and after each step, transformational adaptations were made – converting my traditional teaching practice into an innovative teaching practice of quality. Evidence of best practice in facilitating Whole Brain[®] hybrid learning – a new construct – is offered.

5.2.1.2 How can I develop my professional identity as a lecturer?

In Chapter 2, reference is made to Boyd and Harris (2010) who suggest that lecturer identity develops over time and is influenced by a lecturer's lived experiences, personal characteristics, information gathered and insights gained. Informed by my constructivist epistemology, I would like to add lecturer's new meaning making. In my case, personal characteristics were especially noted and justified. Justification of why I approached both my teaching practice and my study in distinct ways is based on the outcome of the HBDI[®] I completed. My thinking preferences influenced both my lecturer identity and identity as a scholar. The forming of these identities was developmental and transformational. I had to step out of my comfort zone to be able to create Whole Brain[®] hybrid learning opportunities for my students. Collectively, the way in which I facilitated learning as a transformed lecturer, the way

in which I conducted action research of self and practice – translated as scholarship of teaching and learning (SoTL) – contributed to forming my professional identity.

Van Lankveld et al. (2017) explain that lecturer identity can be strengthened by contact with students and staff development programmes. During the study I had contact with the students during the online synchronous session in each cycle of the study. By sharing my knowledge with the students through facilitating Whole Brain[®] hybrid learning helped to strengthen my lecturer identity.

5.3 MEANING OF THE RESEARCH

In my view, the results of this study contribute to informing the perspectives of other professionals in education, students, the higher education institution community used as the research setting.

As indicated in the following part, higher education professionals may benefit from my study in that they should be activated – as the centre of the Whole Brain[®] model indicates – to transform their practices in terms of moving away from a traditional approach to facilitating learning, and using action research as a means to ensure quality enhancement of practice.

Previously mentioned in Chapter 1, I focused on using a Whole Brain[®] action research design to support Whole Brain[®] hybrid learning from an ontological, epistemological, methodological, and constructivist standpoint. My contributions to ontological theory are founded on the idea that one's practice evolves over time.

Epistemologically, my teaching practice and lecturer identity were transformed by implementing constructivist Whole Brain[®] hybrid learning. I applied Whole Brain[®] action research meticulously, and this contributed actively to the study.

5.4 LIMITATIONS AND JUSTIFICATIONS

The limitations I identified are the following: The COVID-19 pandemic had a significant effect on my study. Secondly, the data collection took place at one higher education institution only; and lastly, I had to fulfil multiple roles as a researcher.

The COVID-19 pandemic greatly impacted the way in which my study was conducted, as discussed in Chapter 1. My entire study needed to be reinvented because I could not interview the students face-to-face or in person as I had initially planned. The restrictions due to the pandemic contributed to adapting the action research design, data collection and analysis. I had to use my imagination to work around the rules around time limits and social distance and had the chance to be creative in organising my online synchronous sessions via Zoom because of the accessibility of applications and online communication.

The study was conducted at one private higher education institution only and included a small number of participants; the focus was on only one subject in the Intermediate Phase. I recommend that further research be considered at more institutions and different phases within the higher education sector.

Limitations could also be attributed to the several roles I had to enact and my own presumptions or biases as a practitioner-researcher. I remained conscious of my various responsibilities as a researcher, curriculum developer, facilitator, assessor and mentor. I was aware of my own thinking preferences, accommodated the participants with regard to their preferences by creating learning opportunities that addressed all the quadrants of the Whole Brain® Model. I made a concerted effort to stay free of prejudice and preconceived notions. Finally, I reaffirm that I am of the view that my research is trustworthy.

5.5 RECOMMENDATIONS FOR FURTHER RESEARCH

Extending the study's parameters to involve more lecturers and other higher education institutions, both private and public, will strengthen the data set. Including different phases of education and subjects will give a more comprehensive idea of how and if facilitating Whole Brain® hybrid learning can be implemented in other contexts.

A further study possibility is to create professional development opportunities for lecturers and students to learn how to implement Whole Brain® hybrid learning in their practice.

5.6 CONCLUSION

In this chapter, I reported on how I transformed my lecturer identity by facilitating Whole Brain® hybrid learning. I realised that being able to transform my practice through Whole Brain® hybrid learning was a continuous process that took meticulous planning to enable me to facilitate Whole Brain® hybrid learning successfully.

Reflecting on my master's journey, I realise that I have changed significantly from the person I was when I first set out to pursue the dream of becoming the best lecturer I can be. Even though a study may be meticulously planned before starting, things rarely go as anticipated. Few things on my journey went precisely as I had hoped for, but ultimately, it was my ideal journey.

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Appendix A: Reflective Journal Week 1

Hybrid Activity

Students struggled with the use of Coggle.it. It seems that not all the students are comfortable using respective apps they are unfamiliar with.

The students did well with the research that they had to do on the respective floor elements in gymnastics.

I made use of the institution's online platform as well as a video explaining what the expectation for the learning activity is

Zoom Class

In the first online class, we did experience some infrastructure problems as well as technology problems. The infrastructure included loadshedding and internet connection problems. The Technology problems included that the preferred app could not be used, forcing me to use Zoom. Zoom, unfortunately, has a 40-minute time limit, which made the session very rushed.

Appendix B: Reflective Journal Week 2

Hybrid Activity

The students did well with the research they had to do on treating injuries that can occur during gymnastics.

The videos that the students made were good. I observed that some students were a bit camera-shy because they were not used to making a video of themselves.

I used the institution's online platform to explain the expectations for the learning activity.

Zoom Class

The Zoom class was much more successful than the first cycle, and the students and I did not have as many technical problems as during the first cycle. The class could start on time. As in the first cycle, the switching between respective presenters took unnecessary time. Also, giving time to watch each video and peer assessment took time out of the session and not as much collaboration could occur.

Appendix C: Reflective Journal Week 3

Hybrid Activity

The videos that the students made were good. I observed that the students did better making a video of themselves. Not all the students were able to perform the gymnastics skill correctly. Some groups also did not do all the floor elements as expected or did not do it as a routine as instructed.

I used the institution's online platform to explain the expectations for the learning activity. I also asked the students to submit their videos on the LMS to make them more accessible during the presentation during the Zoom class.

Zoom Class

The Zoom class was much more successful than the first and second cycles, and the students and I did not have as many technical problems. The class could start on time. During this cycle, I instructed the students to watch the respective group's videos before the Zoom class for more collaboration time. This was unsuccessful as some students did not watch the videos beforehand, and I had to take time out of the Zoom class to show the videos, which took time away from collaboration and peer assessment.

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Appendix D: Reflective Journal Week 4

Hybrid Activity

The lesson plans that the students created were good overall. I observed that some groups used the template given in the study material as a reference. Some groups' lesson plans were concise, and others were pervasive.

I used the institution's online platform to explain the expectations for the learning activity. I also asked the students to submit their lesson plans on the LMS to make them more accessible during the presentation during the Zoom class.

Zoom Class

The Zoom class was much more successful than all the other cycles, and the students and I did not have as many technical problems. The class could start on time. During this cycle, I made a presentation of all the lesson plans and presented it on my screen. The students could then turn on their microphones to do the presentation, which made the session flow more manageable than the previous cycles. This also made more time for collaboration and peer assessment.