

**Adopting a medium-impact blended learning
design to address teaching- and learning-
related challenges in large-group
interprofessional teaching**

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PREFACE

This dissertation is presented in article format. Under the guidance of my supervisor, I took responsibility for conducting the research, analysing the data and the writing of the dissertation, which includes the manuscript (§Chapter 3). My supervisor is co-author in the manuscript as she mentored me during the writing my first manuscript. We intent to submit the manuscript to the South African Journal of Higher Education (SAJHE).

Ethical approval was granted by the North-West University Health Research Ethics Committee (NWU-00014-19-S1), and the North-West University Research Data Gatekeeper Committee (NWU-GK-2019-022). All participants provided written informed consent, gave consent for submission for degree purposes and the anonymous publication of data. My supervisor gave consent for submission of the dissertation for examination and the submission of the manuscript to the SAJHE, for review and publication.

I hereby declare that the work submitted in this dissertation is my own, has been text-edited in accordance with the requirements of the North-West University (NWU) and has not already been submitted to any other institution for examination.



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SUMMARY

The continuous changing health care and higher education landscape create unprecedented challenges in preparing health professionals. One such a challenge is fostering student engagement and interprofessional collaborative learning in a large class teaching and learning environment.

The purpose of this study is to explore how Team-based Learning (TBL) can be used to enhance student engagement and interprofessional collaborative learning in a compulsory, philosophy-based module with a 1000+ students. Ethics approval was granted. Using all-inclusive voluntary sampling (n=346), this mixed method study was conducted with second-year students (N=1335), representative of fourteen health/social care professions. Qualitative data-collection included focus group interviews, using a semi-structured interview schedule, as well a post-module reflection activity. Quantitative data collected via the Learning Management System was used in an exploratory supportive manner.

Findings revealed that working collaboratively in interprofessional teams, in-class learning activities such as the team readiness assurance test (tRAT), the clarification sessions and focused application task (FAT) enhanced behavioural, cognitive and emotional engagement. Moreover, exposure to diverse individual and disciplinary perspectives and approaches, challenged hegemonic thinking. Participants experienced improved interprofessional collaboration and collaborative learning, mutual respect, trust, communication skills, problem-solving and understanding disciplinary roles and thinking.

This study contributes to the sparse research in South Africa, and especially in health science education, on the use of TBL to sufficiently enhance student engagement, and interprofessional collaborative learning in a large, undergraduate compulsory module with students from fourteen different health/social care professions.

Key terms: student engagement, student involvement, interprofessional peer-learning, Team-based Learning, large class, higher education, health professions education.

OPSOMMING

Die voortdurende veranderende gesondheidsorg- en hoërondewyslandskap skep ongekende uitdagings as dit kom by die voorbereiding van professionele gesondheidsorgwerkers. Een so 'n uitdaging is die bevordering van studentedeelname en interprofessionele kollaboratiewe leer in 'n groot klas onderrigleer-omgewing.

Die doel van hierdie studie was om 'n ondersoek te loods na die gebruik van span-gebaseerde leer ('Team-based Learning' (TBL)) om studentedeelname en interprofessionele koöperatiewe leer te bevorder in 'n verpligte, filosofie-gebaseerde module met 'n 1000+ studente. Etiekgoedkeuring is verkry. In hierdie gemengde-metode navorsing is 'n als-insluitende vrywillige steekproefneming ($n = 346$) gebruik onder tweedejaarstudente ($N = 1335$) wat verteenwoordigend was van veertien gesondheidsorgvelde. Kwalitatiewe data-insameling het fokusgroeponderhoude met behulp van 'n semi-gestruktureerde onderhoudskedule en 'n refleksie-aktiwiteit, ingesluit. Kwantitatiewe data is ingesamel deur die Leer Bestuur Sisteem en die data is ondersteunend tot die kwalitatiewe data gebruik.

Bevindinge toon dat die samewerking in interprofessionele spanne gedurende die in-klas aktiwiteite soos die spangereedheidstoets (tRAT), die besprekingsessie en die gefokusde toepassingstaak (FAT), tot verhoogde gedrags-, kognitiewe en emosionele betrokkenheid gelei het. Verder is bevind dat blootstelling aan diverse individuele en dissiplinêre perspektiewe en benaderings, hegemoniese denke uitgedaag. Verbeterde interprofessionele samewerking en koöperatiewe leer, wedersydse respek, vertroue, verbeterde kommunikasievaardighede, probleemoplossing en begrip vir verskillende dissiplinêre rolle en denke is deur die deelnemers uitgewys.

Hierdie navorsing dra by tot die tekort aan navorsing in Suid-Afrika, en veral in gesondheidsorg onderrig, rakende die gebruik van span-gebaseerde leer om studentedeelname en interprofessionele koöperatiewe leer te bevorder in 'n groot, voorgraadse, verpligte module met studente uit veertien verskillende gesondheidsorg velde.

Sleuteltermes: studentedeelname, studentebetrokkenheid, interprofessionele koöperatiewe leer, spangebbaseerde leer, groot klas, hoër onderwys, onderwys in gesondheidsorg

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GLOSSARY OF TERMS

Several terms are used in this dissertation. This glossary aims to provide a better understanding of terms used, when reading the dissertation. Terms in this glossary are clustered together around a specific concept and not necessarily listed alphabetically.

Blended learning	Blended learning is an “innovative teaching and learning design that combines the best of face-to-face and online teaching and learning approaches. It integrates thoughtfully selected complementary teaching and learning methodologies and technologies, based on educational merit as determined by factors such as the pedagogical context, the nature of the discipline and the learning material, and the profile of the students, so that the strengths of each are blended into a unique learning experience. It is a fundamental redesign that transforms the structure of, and approach to, teaching and learning embedded in a range of delivery modalities” (North-West University, 2016, p. 8).
Low-impact blend	A low-impact blend entails adding extra online activities to a traditional face-to-face course without eliminating any of the existing activities (Alammary et al., 2014, p. 444).
Medium impact blend	A medium-impact blend entails a partial redesign of a module by replacing some of the traditional face-to-face content and activities with online components (Alammary et al., 2014, p. 445).
High impact blend	A full and radical redesign of a module with purposively selected online and face-to-face components to facilitate optimal student learning (Alammary et al., 2014, p. 447).

Face-to-face learning environment	In this study the face-to-face learning environment refers to a classroom setting whereby students are physically present in the classroom together (Jaques & Salmon, 2006, pp. 3, 5).
Online learning environment	A structured learning environment used for knowledge acquisition and communication within computer mediated digital systems such as Learning Management Systems (LMS) (Picciano, 2006, p. 99).
Flipped classroom	Content is delivered on an electronic platform (in this study the module's content will be uploaded onto the Learning Management System (LMS)). Students are required to work through the content on a self-pace, self-based principle. Application of theory to practice (also known as praxis) happens during the face-to-face contact session where the lecturer facilitates the learning process (Margulieux et al., 2013, p. 3).
Flipped learning	"A pedagogical approach where first contact with new concepts moves from the group learning space to the individual learning space in the form of structured activity, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (Talbert, 2017, p. 20).
Interprofessional (education)	The WHO defines Interprofessional Education (IPE) as "students from two or more professions learn[ing] about, from, and with each other to

enable effective collaboration and improve health outcomes” (World Health Organization, 2013, p. 13).

“Interprofessional education occurs when students or members of two or more professions learn with, from and about each other to improve collaboration and the quality of care” (Barr & Low, 2013, p. 4).

Interprofessional learning	Barr and Low (2013, p. 4) define interprofessional learning as “learning between students or members of two or more professions to enhance knowledge and competence during interprofessional education, or, informally in educational or practice settings.”
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Interprofessional teamwork	Barr and Low (2013, p. 4) define interprofessional teamwork as “engagement between members of two or more professions with complementary competences in sustained collaborative practice towards common goals.”
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Professional	The World health Organization defines a professional as “an all-encompassing term that includes individuals with the knowledge and/or skills to contribute to the physical, mental and social well-being of a community” (World Health Organization, 2010, p. 13).
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Health	The World health Organization defines health as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (World Health Organization, 1946).
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Learning	According to the United Nations Educational, Scientific and Cultural Organization, learning refers to “any improvement in behaviour, information, knowledge, understanding, attitude, values or skills” (United Nations Educational, 2006, p. 7).
Active learning	Active learning refers to any method of instruction that engages students in an active way as an individual and/or as part of a small group during the learning process (Talbert, 2017, p. 13).
Collaborative learning	Collaborative learning (CL) is an “educational approach to teaching and learning that involves groups of learners working together to solve a problem, complete a task, or create a product” (Laal & Laal, 2012, p. 491).
Team-based Learning	In this study Team-based Learning (TBL) refers to the strategic grouping of students (I make use of interprofessional grouping); a readiness assurance process (RAP) which includes an individual readiness assurance test (iRAT) and a team readiness assurance test (tRAT) aimed at preparing students for learning unit content before a scheduled TBL session, and lastly the Focused Application Task (FAT) session where students apply their knowledge to solve a case related problem as a team (Michaelsen & Sweet, 2008a, p. 7; Wallace & Walker, 2018, p. 68).
Large class	Various perspectives exist on what is considered as “large” when referring to large class teaching. No quantitative definition of what constitutes a "large" class exist as it all depends on context (Hayes, 1997). In this dissertation, ‘large’ refers to 1315 second year university students enrolled for the compulsory module WVGW 221 at the North-West University.

Student
engagement

Drawing on various understandings of student engagement, student engagement in this study refers to a student's level of behavioural, cognitive, and emotional involvement or interest in their learning process and can be linked to a desired outcome. (Fredricks et al., 2004, pp. 60-61).

ABBREVIATIONS AND ACRONYMS

Several abbreviations and/or acronyms are used throughout this proposal. The abbreviations and acronym list aims to provide guidance when reading the proposal.

AfrIPEN	African Interprofessional Education Network
ASSAf	Academy of Science in South Africa
CHPE	Centre for Health Professions Education
CHWs	Community Health Workers
CL	Collaborative learning
Co-I	Co-investigator
Co-Is	Co-investigators
CRA	Campus-based research administrator
DSMP	Data Safety and Monitoring Plan
FAT	Focused Application Task
HCPs	Healthcare professionals
HPE	Health professions education
ICL	Interprofessional collaborative learning
IPE	Interprofessional Education
iRAT	Individual Readiness Assurance Test
LMS	Learning Management System
NWU	North-West University
NWU-HREC	North-West University Health Research Ethics Committee
PI	Principal investigator
PRA	Primary research administrator

QUAL + quan	QUALITATIVE + quantitative
RAP	Readiness assurance process
RDGC	Research Data Gatekeeper Committee
RSCM	Research support committee member
SoTL	Scholarship of Teaching and Learning
SU	Stellenbosch University
TBL	Team-based Learning
tRAT	Team Readiness Assurance Test
UFS	University of the Free State
UKZN	University of KwaZulu-Natal
UP's	Unanticipated problems
WHO	World Health Organisation
WIL	Work Integrated Learning
WVGW 221	Understanding the World of Health module

CHAPTER 1

ORIENTATION AND INTRODUCTION

1.1 INTRODUCTION

Numerous forces are continuously shaping and challenging the higher education and health care landscape (Academy of Science in South Africa, 2018, pp. 23-24; Council on Higher Education, 2016, pp. 5, 9). The shift towards “health care as a team sport” accompanied by the call for an interprofessional and collaborative perspective on health professions education using blended and team-based approaches, necessitates health educators to act as agents of change by incorporating innovative and transformative educational strategies into their teaching (Kayingo & McCoy Hass, 2018, p. xxvii; Sadler et al., 2018, p. 1). A review of the literature indicated limited published research on the use of interprofessional, blended and Team-based Learning as transformative educational strategy in the health sciences. Also, no research has been conducted on the application of these strategies in a compulsory, philosophy based, interprofessional module with a 1000+ undergraduate second-year health students.

The purpose of this study was to explore how a medium-impact blended learning design can address challenges such as limited student engagement and the difficulties experienced when facilitating interprofessional collaborative learning through Team-based Learning (TBL) activities in a compulsory second-year module and large class setting.

In this chapter, I present the background of this study, before discussing the problem of facilitating interprofessional learning and student engagement with a 1000+ students in a compulsory, philosophy based module. Thereafter I discuss the research paradigm and research methodology, the quality and rigor of the research and the ethical considerations in this study. I end this chapter with an explanation on how I will disseminate the findings and how the dissertation as a whole has been organised.

1.2 BACKGROUND

The complexity of the fast changing health care landscape and the shift towards “health care as a team sport”, necessitates that health care educators “continuously and critically reflect on the way they prepare students as health professionals” (Kayingo & McCoy Hass, 2018, p. xxvii). Sadler et al. (2018, p. 1) concur and state that graduates entering the health care environment should be able to function in a collaborative, team-based care environment and deliver all-inclusive, preventive, holistic health care. In aligning our teaching with the objective of health professions education (HPE) to educate and deliver competent health workers who are able to work together (Academy of Science in South Africa, 2018, p. 17), as well as the call for an interprofessional and collaborative perspective on health professions education using team-based approaches (Academy of Science in South Africa, 2018, p.

17; Kayingo & McCoy Hass, 2018, p. xxvii), it is inevitable that health professions educators should reassess their current teaching practices.

The 2018 report titled: Reconceptualising Health Professions Education in South Africa, published by the 2018 Academy of Science in South Africa emphasises that “health professions educators have to be more responsive by acting as change agents, incorporate transformative educational strategies into our teaching, enhance our scholarship and continuously reflect on our role, responsibilities and practices within the field of health science education” (Academy of Science in South Africa, 2018, p. 157).

However, adapting health professions education in the higher education context never transpires without challenges. Over the last few years the call for increased access to higher education as well as universities facing budgetary constraints have resulted in an increased number of students entering the higher education environment, creating unprecedented teaching- and learning-related challenges (Council on Higher Education, 2016, p. 7). Numerous forces are continuously challenging and shaping the higher education landscape and health science education and health professions educators have to find innovative ways to adapt and keep up with the challenging and changing demands (Academy of Science in South Africa, 2018, p. 17; Council on Higher Education, 2016, pp. 5, 9; Kayingo & McCoy Hass, 2018, p. xxvii).

1.2.1 Background concerning the module under investigation

Since 1994, the South African higher education landscape has seen many changes (Department of Higher Education, 2013, p. 27). As part of the transformation agenda in higher education, the North-West University (NWU) officially came into being on 1 January 2004 and as a conventional university, the NWU is made up of three campuses. The Mafikeng Campus and the Potchefstroom Campus is situated in the North-West Province and the Vaal Triangle Campus is situated in Gauteng (North-West University, 2015, p. 2).

This study was conducted in the module “Understand the World of Health” (WVGW 221). WVGW 221 is presented as a second year, second semester (July to November) module on all three campuses of the NWU. The module houses approximately 1380 enrolled students annually across the three campuses. WVGW 221 is a compulsory, philosophy based module for all second-year students registered as health students, as well as for students from other faculties who take psychology as a second core module in other non-health degree programmes. The module aims to provide students an opportunity to critically, philosophically and collaboratively engage with health related topics from different frameworks of thought. The module is fully aligned, indicating that the module outcomes, the study material and supporting resources, teaching methodology, learning activities and assessments are the same across all three campuses to provide all students on the different campuses, and resulting

in, as far as possible, a similar learning experience. Table 1.1 provides insight into the module profile on the different campuses.

Table 1.1 Module profile on the three campuses of the NWU

Component	Potchefstroom Campus	Mafikeng Campus	Vaal Triangle campus
Average of registered students per annum	1050	80	137
Number of disciplines represented	14	1	3
Disciplines	• Pharmacy, • Nutrition, • Dietetics, • Social Work, • Psychology, • Physiology, • Consumer Sciences, • Occupational Hygiene, • Human Movement Science, • Biokinetics, • Recreation, • Sports Science • Coaching Science	• Coaching Science. On the Mafikeng Campus the same learning design (medium-impact blended design and Team-based learning) was followed despite the absence of other health disciplines.	• Social Work, • Psychology • Sports Science.
Number of lecturers responsible for facilitation of student learning	2	1	1
Teaching venues	Auditorium with fixed seating	Auditorium with fixed seating	Auditorium with fixed seating
Number of students per contact session	350 (repeat contact session)	80	137

In 2018 the module ownership and teaching responsibility was assigned to the Centre for Health Professions Education (CHPE). Examining written feedback from students at the end of 2017 indicated that students were experiencing numerous challenges in the module. An analysis of the feedback indicated that the majority of these challenges could directly and/or indirectly be linked to the phenomenon of large class teaching and learning. Some of the challenges include (but is not limited to): limited student-to-student, student-to-lecturer and student-to content engagement. A low-impact blend was applied with content made available on the Learning Management System (LMS) in the form of reading material, PowerPoint and lecture recordings. Traditionally, during the contact sessions, the

content was again 'presented' in a PowerPoint guide lecture. It was usually one-directional, students were passive in the learning process and therefore attention deteriorated, in-class participation was limited to asking questions for clarification purposes, and the effectiveness of the group work activities was questioned. In addition, the opportunity for effective interprofessional collaborative learning was limited,

To address these challenges and improve the students' learning experience of students, required a revisit and refining of the module's teaching and learning approach, including the blended learning approach. Essential to this revision was deciding on which form of blended learning would be most appropriate for the context and content of WVGW 221. There are different understandings of blended learning, and Alammery et al. (2014, pp. 441-443) classify blended learning design approaches into low-impact, medium-impact and high-impact blends – each with their own benefits and challenges.

Taking into account the design history of the module, as well as our experience during the design of other blended learning experiences, adopting a medium-impact blended learning approach with more structured individualised and collaborative learning opportunities in both the face-to-face as well as in the on-line environment, were necessary. This kind of change was something which both Altbach et al. (2009, p. 125) and Alammery et al. (2014, p. 440) noted have become more popular in universities, as it presented unique opportunities to address the diverse needs and expectations of 21st century students. We thus aimed to enhance the module from a low-impact blend to a medium-impact blend. This implied replacing selected face-to-face activities with more effective online activities. This replacement approach was steered by the pedagogical need to utilise the face-to-face time more effectively. The design of a medium-impact blend required some blended learning design experience and confidence, as it allowed the lecturer to experiment with different approaches to learning and the use of technology to enhance student learning (Alammery et al., 2014, p. 445). During the design of the WVGW 221 medium-impact blend, the pedagogical context, the nature of the module and the learning material as well as the profile of the students registered for this compulsory module guided the selection of complementary teaching and learning methodologies and technologies. Although there are ample reasons to revisit the current teaching and learning practices in the module, the question remained: Will the pedagogical redesign enhance student-to-student, student-to-lecturer and student-to-content engagement, and enhance interprofessional collaborative learning through Team-based Learning activities?

1.3 PROBLEM STATEMENT

The complexity of the rapidly evolving higher education environment and the evolving demands of the health care landscape are challenging health professions educators. As scholars, they have to continuously reflect on their role, responsibilities and practices and revise their teaching accordingly (Academy of Science in South Africa, 2018, pp. 17, 157).

The past decade has seen many reports published placing a greater emphasis on preparing health professionals (this includes students as health professionals in the making) to work collaboratively as part of an interprofessional team (Academy of Science in South Africa, 2018, p. 107; Cuff, 2016, p. 6; Sadler et al., 2018, p. xxiv). The nature of the WVGW 211 module allows for students from diverse disciplines to work together and learn with and from one another. However, teaching and enhancing student learning in a module with ± 1000 students from diverse disciplinary, biographical and geographical backgrounds poses various teaching- and learning-related challenges to both lecturers and the students. This was confirmed by the student reflections at the end of 2017, where both the difficulties regarding interprofessional collaborative learning through group work, and limited engagement (student-to-student, student-to-lecturer, and student-to-content), were highlighted as the two most important challenges.

There are numerous publications on teaching and learning strategies for large group teaching, adopting a blended approach to teaching and learning as well as interprofessional education. However, the uniqueness of this philosophy based, interprofessional, compulsory module within the Faculty of Health Sciences requires further investigation, not only to enhance the quality of teaching and learning at the NWU, but also to contribute to the body of knowledge regarding enhancing student engagement and interprofessional collaborative learning through Team-based Learning activities in a large class setting in health professions education.

The dynamic and challenging teaching environment surrounding the WVGW 211 module requires an innovative teaching and learning design, where a student, as a member of a heterogeneous interprofessional group/team, can engage in structured online and/or face-to-face team-based collaborative learning opportunities. However, designing a medium-impact blended, student-centred, and participative learning experience is challenging and needs extensive resources in terms of time and commitment. Again the question arises: To what extent does changing the pedagogical approach and design enhance student engagement and interprofessional collaborative learning? The only way to really determine the extent to which the re-design of this module will enhance student engagement and enhance interprofessional collaborative learning and improve the quality of teaching and learning, is to investigate the matter through research. Thus, this study strives to investigate how a medium-impact blended learning design can:

- enhance student-to-student, student-to-lecturer and student-to-content engagement, and
- enhance interprofessional collaborative learning through Team-based Learning activities.

1.4 PURPOSE OF THE PROJECT

The purpose of this study is to explore how a medium-impact blended learning design in a compulsory module and large class setting can

- address the challenges of limited student-to-student, student-to-lecturer, student-to-content engagement, and
- enable interprofessional collaborative learning through Team-based Learning activities.

1.5 RESEARCH QUESTION, OBJECTIVES AND SUB-QUESTIONS

The research question posed is: “How can a medium-impact blended learning design, using a Team-based Learning approach, address the challenges related to large class teaching and learning in an interprofessional compulsory module setting?”

Specific objectives for this study include:

- Objective 1: To examine how a medium-impact blended learning design can enhance student-to-student, student-to-lecturer and student-to-content engagement, and
- Objective 2: To explore how a medium-impact blended learning design can enhance interprofessional collaborative learning through Team-based Learning activities.

To reach these objectives the following research sub-questions will guide the research:

- Sub-question 1: What are the experiences of students regarding student-to-student, student-to-lecturer and student-to-content engagement in a medium-impact blended design? (Objective 1), and
- Sub-question 2: How does a medium-impact blended design enhance interprofessional collaborative learning in a large class setting? (Objective 2).

1.6 RESEARCH DESIGN AND METHODOLOGY

The following section outlines the plan and structure of this research which will serve as blueprint during this study.

1.6.1 Research paradigm

This research study is anchored in a constructivist-interpretivist paradigm.

This study focuses on examining, exploring and understanding student engagement as well as learning with and from peers when working collaboratively within a large class blended learning environment. Within this large class setting as a social environment (be it be face-to-face or online) students interact as social beings and many constructed realities exist as a result of students’ knowing, being and doing which had been moulded by past lived experiences and their interactions with others (McMillan & Schumacher, 2006, p. 12). This is especially relevant for interprofessional learning, as the students bring their own perspectives and past lived experiences from different health professions to the table.

Students perceive the learning environment differently, come from different contexts and have different feelings and/or perceptions when it comes to engagement and collaborative learning through group work in a blended environment. As a result, their actions and behaviours are unpredictable. We seek to capture, understand and describe perceptions, feelings and behaviour from the subjective frames of reference of our WVGW 221 students, and the best way of doing this is by interacting and engaging with them.

1.6.2 Research strategy of inquiry

1.6.2.1 Literature review

An extensive literature study that included both primary and secondary sources was conducted. Various databases such as EBSCOHost, ERIC & Academic Search Premier, SAcad, JSTOR, Google Scholar, MEDLINE, SCOPUS, CINAHL and ScienceDirect were exploited to obtain as much information as possible in accordance with the research problem, purpose and objectives stated (§1.3, 1.4 & 1.5). Information from the literature review was evaluated and analysed for the establishment of a sound theoretical foundation and framework to emphasize the reasoning surrounding the research study. The following key phrases and words were used in the literature research: engagement, student engagement, student-to-student engagement, student-to-content engagement, student-to-lecturer engagement, blended learning, blended learning design, low-impact blend, medium-impact blend, high-impact blend, interprofessional learning, interprofessional group work, interprofessional group learning, interprofessional collaborative learning, Team-based Learning, collaborative learning, active learning, health professions education, and teaching health professionals.

1.6.2.2 Empirical research

This research study adopted a fixed mixed-method approach with a convergent design. A mixed-method, QUAL + quan approach with an emphasis on the qualitative strand, fits well into this study's research design. Using a convergent design implied that both the qualitative and quantitative strands were collected at the same time and analysed separately. Once the data is analysed, the qualitative data sets will be merged and the quantitative data was then used in an exploratory supportive manner to the qualitative data during the interpretation stage (Creswell & Clark, 2018, pp. 68, 71).

Adopting a QUAL + quan approach allowed us to explore and gain insight into the phenomenon of student-to-student, student-to-lecturer and student-to-content engagement, as well as the phenomenon of group work in a medium-blend face-to-face and online environment in a large interprofessional classroom setting. For the qualitative part of this research, I used interpretive description, as it is viewed as a suitable method for finding practical solutions to the problems health professions educators are facing (Teodoro et al., 2018, p. 2). Interpretive description allowed us to explore and gain insight into our students' unique perceptions, subjective beliefs, perspectives and past experiences regarding

student engagement, and interprofessional collaborative learning between different health related disciplines. We engaged with students during the focus group interviews using a semi-structured interview schedule, as well as analysed their personal reflections on how they perceived the engagement with the content, their peers and the lecturer within an interprofessional large class setting within Health Sciences.

For the quantitative research I used a descriptive design. According to McMillan and Schumacher (2014, p. 163), a descriptive design summarizes an existing phenomenon by using numbers to describe individuals or groups. It assesses the character of an existing situation and the aims to characterising something as it is.

1.7 Population

The population for this study comprised of 2019 undergraduate registered students for the philosophy-based, compulsory second-year module “Understanding the World of Health” (WVGW 221) on the Potchefstroom, Mafikeng and Vaal Triangle Campuses of the North-West University.

1.7.1 Sampling, Inclusion and Exclusion criteria

In this mixed-method study, I made use of non-probability sampling with the espoused main method being purposive voluntary sampling.

Botma et al. (2010, p. 126) argue that there are two guiding principles in sampling. These include appropriateness of the sample referring to identification of the best suited participants, and adequacy of the sample referring to having enough participants to reach data saturation.

Originally embedded in grounded theory, saturation can be described as having sufficient accessible data in order to completely and abundantly describe the phenomena under investigation to such an extent that the data does not generate any new insights (Creswell, 2014, p. 288). In this research the qualitative data collection included the focus group interviews using a semi-structured interview schedule, and written reflections of participants at the end of the semester. In the case of the focus group interviews, I continued conducting focus group interviews with WVGW 221 students who gave consent and re-consent until data saturation was reached.

Our sample aimed to:

- include registered WVGW 221 students in 2019 representative from various health professions on the respective campuses of the NWU, who volunteered in response to an invitation for participants,
- include all available WVGW 221 students who are the study population and would be in a position to provide the best information to address the research objectives, and

- adhered to the inclusion and exclusion criteria.

The target population consisted of the class on each of the three campuses of the NWU. We made use of an all-inclusive voluntary sample. Thus, the maximum sample size was ± 1335 students. However, it was highly unlikely that all of them would be willing to partake in the study. As the student population and characteristics on each campus differ extensively, it was not possible to have a homogeneous sample dimension at the three sampling sites. Purposive voluntary sampling was used. All WVGW 221 student were invited and students who volunteered to participate, formed part of the sample for each data collection method until data saturation was reached. Potentially there were ± 1335 registered students across the three campuses that could give their voluntary consent to participate. Once again, I was realistic about the number of students that would participate in the end, as students are not always comfortable to be involved in this kind of research, making it difficult to predict an estimate of voluntary participants. The inclusion and exclusion criterion for this research included:

1.7.1.1 Inclusion criteria

- a) Voluntary participation: This research included first-time registered students as well as students repeating the module, WVGW 221 in 2019. Only students who voluntarily agreed to participate in the research, after being informed of the scientific and ethical aspects of the research, and after signing the informed consent forms, were included.
- b) Language proficiency: Participants had to be able to express themselves in Afrikaans and/or English as these were the modes of instruction in this module.

This research aimed to explore the participants' viewpoints on the module's design aspiring at enhancing student-to-student, student-to-lecturer and student-to-content engagement, and interprofessional collaborative learning through Team-based Learning, therefore participants did not need to be a representative sample of any given gender, age, ethnic background and/or profession.

1.7.1.2 Exclusion criteria

Within the identified study population (§1.7), students who did not register for the module WVGW 221 in 2019, and students who did not sign the informed consent form, were excluded from this study.

1.8 Recruitment of participants and advocating the intended research

Before any student who complied with the inclusion criteria for this research was recruited and asked for their written informed consent, I obtained

- ethics approval from the Health Research Ethics Committees (NWU-HREC) of the Faculty of Health Sciences of the North-West University (Ethics reference number: NWU-00014-19-S1), and

- institutional ethics approval from the NWU's Research Data Gatekeeper Committee (RDGC) to conduct research at the NWU and with NWU students (NWU RDGC reference number: NWU-GK-2019-022).

I recorded a short 2-minute explanatory video providing an overview of the intended research. The video informed the prospective participants about:

- the background, aim and objective of the intended research,
- that participation was voluntary,
- that the request for participation was for broad consent and what broad consent implies,
- as participation was voluntary, participants had the right to withdraw from the research at any time, without explanation or prejudice,
- the role of the lecturer in the research and the use of a research support team consisting of the lecturers on the Mafikeng and Vaal triangle Campus, experienced Research Support Committee Members (RSCM), campus-based research administrators (CRA), a focus group facilitator, a research assistant, a coder and co-coder,
- the data-gathering phases which included research-related activities and procedures and the analysis process,
- the anticipated risks of harm or discomforts, potential benefits, compensation, safety related matters and partial confidentiality should they participate in focus group interviews,
- how anonymity, privacy and confidentiality of the participants' information will be managed to uphold the dignity and rights of the willing research participants,
- the ethics process prior, during and after the study, as well as disclosure of research findings.

The information video, the informed consent form and all other research related supporting documents explaining the research in more detail, were uploaded onto the 2019 WVGW 221 module site on eFundi, the NWU's LMS, (hereafter module site), under a specially created tab: WVGW 221 research_students. The tab was available fourteen (14) days prior to the beginning of the module and was available to the students for the duration of the research.

After uploading the research information video with supporting documentation, I posted an announcement on the module site, requesting students to watch the information video on the intended research, read through the informed consent form and the other research related supporting documentation. I also invited them to contact their respective RSCM, should they have any questions.

During the last 15 minutes of the first WVGW 221 contact session (Week 15-19 July 2019), WVGW 221 students were adequately informed about the intended research by the RSCM. After introducing the RSCM, the lecturer left the venue to reduce the susceptibility of the students as a captive and vulnerable audience, and to minimise the impact of the power relation between lecturer and students. After the lecturer had left the venue, the respective RSCM showed the short explanatory video, addressed any uncertainties and/or questions, handed out a hard copy informed consent form and discussed the content of informed consent form with the students (§Appendix C). Students not interested in participating in the research could leave the lecturing venue.

Prospective participants, who were absolutely certain of their willingness to participate in the research, completed and signed the informed consent form in writing. On leaving the venue, these participants handed their informed consent forms to the respective RSCM or CRA who also signed the informed consent forms in their presence. Completed and signed informed consent forms were placed in a box, sealed in front of the last student and kept in a safe place until delivered to the primary research administrator (PRA).

Prospective participants who needed more time to think about participating in the research, and/or who wanted to contact the RSCM either telephonically, via electronic mail and/or in person regarding any uncertainties and/or questions they might have, had seven (7) days to do so. On receiving clarity and certainty, they completed and signed the hard copy informed consent form in the privacy of their own home. After seven (7) days the PRA posted a reminder on the module site requesting prospective willing participants, who had requested to complete the informed consent at a later stage, to please bring the written consent form to the contact session venue where the respective campuses' CRA's collected them and signed the informed consent in their presence. These informed consent forms were safeguarded with the other informed consent forms.

Until collected by the PRA, all informed consent forms were kept safe in a locked cabinet in the CRA's office with the CRA, the only person having access to the cabinet. The PRA collected all the completed and signed written informed consent forms during week 05 – 08 August 2019, and coded willing participants accordingly, by replacing their names with individual codes (§Table 1.3).

1.9 Research method: Instruments, data collection and analysis

Data collection commenced after formal approval by the NWU-HREC (§Appendix A) and RDGC (§Appendix B). Data collection was executed according to a mixed-method approach with a convergent design. The level of interaction during data collection in the two strands were independent. The research was conducted in different phases. Both strands ran simultaneously and only joined during the overall interpretation at the end of the study (Creswell & Clark, 2018, p. 70).

The research consisted of three phases:

- Phase 1, a quantitative phase, in which student data was captured throughout the semester when students logged into the module site on the LMS,
- Phase 2, a qualitative phase where focus group interviews, using a semi-structured interviews schedule, were conducted, and
- Phase 3, also qualitative in nature where written student reflections were qualitatively analysed.

Tables 1.2 – 1.4 provide a discussion of the three data collection and analysis phases:

1.9.1 Phase 1: Quantitative data: Statistics and Gradebook functionalities in module site on the LMS

The purpose of Phase 1 was to gather data on student engagement with the content of the module in the online part of the blended learning environment.

Table 1.2 Statistics and Gradebook functionalities on the LMS, eFundi

Data collection instrument
Statistics and Gradebook functionalities on the Learning management system (LMS), eFundi.
Description
Students: The statistics and gradebook functionalities will be used to explore student engagement and performance regarding: • content engagement: access of content in lesson functionality • content engagement: Individual Readiness Assurance Test (iRAT), • content engagement: Team Readiness Assurance Test (tRAT), • content engagement: Focused Application Task.
Data collection
Data was automatically generated and captured throughout the semester when students logged into eFundi, accessed content of each learning unit, completed the iRAT, and viewed the gradebook for the marks of the tRAT and the FAT.
Data analysis
The PRA made sure that the data was cleaned and removed the data of students who did not give consent and/or withdrew from the research. The PRA cleaned the data by removing any identifiable information and assigned a unique code to participants. By removing any identifiable information, I aimed to enhance anonymity and confidentiality. The anonymised datasheet was released for data analysis on 1 November 2019.

Due to the investigative nature of the study, descriptive statistics was used. The possible variables investigated were:

- the total number of visits per individual to the module site on the LMS (statistics functionality),
- the total number of visits to the module site on the LMS over a selected period of time (statistics functionality), and
- student performance over time (gradebook functionality).

The quantitative data collected via the Learning Management System was used in an exploratory supportive manner. The average number of times students accessed the LMS was captured based on the automated responses of the LMS, and not the % of the class that accessed the LMS, therefore the response rate was not deemed applicable for this study. Also, only the data of the students who gave informed consent were used, so the data of the group as a whole was not accessible. A reference to the participation rate in terms of the qualitative research is stated in 4.3. A statistician at the NWU Statistical Consultation Services was consulted to assist with the analysis and the use of descriptive statistics, including percentages, means and standard deviations. Associations or comparative analysis was not investigated.

1.9.2 Phase 2: Qualitative data: Focus group interviews

The second phase of the research consisted of focus group interviews using a semi-structured interview schedule with students who indicated that they were willing and available to participate in these discussions. The purpose of the focus group interviews was to get insight into the students' viewpoints on the topic at hand and where needed, probe to gain a better understanding of their perceptions, experiences, opinions, attitude and beliefs regarding the use of TBL to enhance student engagement and foster interprofessional collaborative learning.

Table 1.3 Focus group interviews

Data collection instrument
Focus group interviews using a semi-structured interview schedule (Appendix D).
Description
Qualitative data was gathered using face-to-face, focus group interviews. I concur with Botma et al. (2010, p. 211) that focus group interviews allow for in-depth focussed discussion to thoroughly explore the participants' experiences, opinions, attitude and beliefs about a specific phenomenon. Therefore, I deem focus group interviews as the most appropriate data collection tool for this research as I wanted to explore participants' experiences, attitude and beliefs about how a medium-impact

blended learning design actually enhanced engagement and interprofessional collaborative learning through Team-based Learning activities.

Implementing Botma et al. (2010, p. 209) and the guiding principles of Creswell and Clark (2018, p. 180) of using three to six open-ended questions with probing questions, I compiled a semi-structured interview schedule with predetermined open-ended questions which I arranged from simple to complex. The proposed interview schedule was reviewed by experts in the field of large class teaching at the NWU. Selected individuals were asked to review the questions and before data collection commenced, the final interview schedule was sent to the NWU-HREC for approval.

The focus group interviews were conducted in both Afrikaans and English to accommodate the participants' language preferences, therefore I translated the interview schedule to avail it in both Afrikaans and English. Thereafter, a critical reader, fluent in both languages was requested to correlate both interview schedules to ensure congruency.

Data collection

Participation in the focus group interviews was entirely voluntary and no participant was discriminated against for not participating in a focus group interview. Separate sixty-minute focus group interviews, using a semi-structured interview schedule, were conducted with willing students on the different campuses.

To ensure the availability of students, the focus group interviews were scheduled towards the end of the semester and were aligned with the academic timetable of participants to ensure non-interference with their other academic responsibilities. A number of possible date and times for focus group interviews were scheduled and participants could attend a focus group interview at a date and time that suited them best. The focus group interviews were conducted in week 09 – 13 September 2019. A week prior to the focus group interviews, the CRA emailed the participants to communicate the logistical arrangements surrounding the focus group interview. Participants were again contacted by the CRA twenty-four hours before the focus group interview to remind them of the logistical arrangements.

Location of- and preparation for the focus group interviews

- To ensure the privacy of the participants, convenient, private and interruption-free venues on all three campuses of the NWU were identified, booked and used for the focus group interviews.
- Focus group interviews were conducted by an interviewer with ample experience in conducting focus group interviews. The interviewer was supported by a trained research assistant who was responsible for taking field notes during the focus group interview.

- I had an in-depth discussion with the interviewer before the data collection started to ensure that the interviewer understood the research problem, objectives and the context.
- I discussed each of the open-ended questions in the semi-structured interview schedule as well as the interview process with the interviewer in an effort to enhance the rigor of the interview process (Botma et al., 2010, p. 211).
- As suggested by Babbie and Banaquisto (2010, p. 36), the estimate size of each focus group should range between four to ten participants per session to generate as rich data set as possible. However, in this study, despite having confirmed attendance, some participants neglected to show up for the focus group interview, resulting in some of the groups being smaller than planned.
- As suggested by Burns and Grove (2009, p. 269), a sign stating “Do not disturb. Interview in progress” was placed on the venue’s door(s), and restroom locations were indicated with signs.
- Chairs were placed in a circular formation.
- As a sign of appreciation, light snacks were served in a designated area and participants also had access to bottled water.
- A clock, two digital voice recorders with spare batteries, number cards, paper and stationary were taken to the venue.
- A file containing research related administrative documents such as the completed informed consent forms and the Ethics approval letter was also taken to the venue.
- Before the focus group interview commenced, the research assistant assigned a number to each participant to use instead of their names. Assigning numbers to participants enhanced anonymity and confidentiality during the data collection, transcribing and data-analysis process.
- Depending on participant preference, a card containing the number assigned to the participant was either placed in front of the participant or pinned to the participant’s shirt on either side of the chest.

Arrival of participants

As participants arrived at the venue the interviewer and trained research assistant:

- introduced themselves,
- thanked participants for their willingness and donating their time to participate in the research,
- invited participants to help themselves to a light snack,
- indicated where the restrooms were, and
- distributed the assigned number cards.

Onset of the focus group interview

Once everyone arrived, the interviewer started with a short explanation outlining:

- the purpose, aim and objectives of the research,
- the relevance of the research,
- how each member's contribution would make a difference and how each participant brought a unique and valuable input to the discussion,
- what the focus group process would entail and how long the interview would take,
- that due to the nature of focus groups, only partial confidentiality could be ensured (Botma et al., 2010, p. 212),
- that participation was voluntary at all times, that participants did not have to respond and that they could withdraw from the interview at any time without any consequences,
- group rules to ensure that the interview was conducted in an orderly manner,
- the use of the digital voice recorders for the purpose of transcription. Participants were requested to verbally confirm consent for recording purposes.

Lastly the interviewer addressed any questions and/or uncertainties raised by the participants.

During the focus group interview

The interviewer thereafter started the focus group interview and used the open-ended question in the semi-structured interview schedule as guideline. As suggested by Botma et al. (2010, p. 213), the interviewer made use of facilitation and communication techniques such as minimal verbal responses, paraphrasing, probing, reflection and clarification when interesting possibilities surfaced during the interview to obtain further information. Rich, saturated, quality data was ensured through the active discussions in the focus groups and until no new relevant data emerged (Botma et al., 2010, p. 213).

Data analysis

Directly after a focus group interview, all digital recordings of the focus group interview were transferred from the recorders to the password protected computer of the PRA. Directly after the transfer, the audio files were deleted from the digital voice recorders. Recorded focus group interviews were transcribed verbatim by an independent transcriber who signed a confidentiality agreement (Botma et al., 2010, p. 214). To enhance anonymity and confidentiality all data sets were cleaned and any identifiable information removed.

During the data analysis approach the following six steps as described by Creswell and Clark (2018, p. 222), were followed:

1. **Prepare the data:** I started with organising, sorting and arranging the transcribed focus group interviews, field notes and different types of data.
2. **Explore the data:** I did the initial coding. This implied reading through the data in order to develop a general sense of the data and making notes capturing the initial and general thoughts on the data.
3. **Analyse the data:** I then commenced with the detailed data analysis process by coding the data. To identify student engagement related data, I applied a deductive approach to identify cognitive, behavioural and emotional engagement as outlined in the multidimensional clustering by Fredricks et al. (2004, pp. 60-61) (§2.2.1). However, an inductive approach was also used when analysing the data, adding new codes as new ideas emerged. Atlas.ti™ 8 (a qualitative data-analysis software) as I was familiar with the data-analysis software. Tesch's (1990, pp. 115-126) approach to data analysis guided the data analysis process. These steps include:
 - 3.1 reading and rereading the transcribed interviews to get a sense of the whole,
 - 3.2 starting with a selected transcript, reread and examine the transcript by asking the question: "What it is about?" Mindfully processing the information, I identified and noted down any emerging themes, sub-themes and codes that came to mind,
 - 3.3 repeatedly reading, examining and scrutinising the transcribed interviews, I linked relating text to a code which was linked to a sub-theme, theme and pattern. Where text segments emerged that could not be linked to an initial code, a new code (with possible sub-theme, theme and/or pattern) was created and linked to the relating text,
 - 3.4 to enhance the validity and trustworthiness of the research the data set was examined by a co-coder with an educational background and experience in qualitative data analysis. The co-coder worked separately. Once having completed the data set, we discussed the coding and where amendments to the coding were needed, we adapted our coding accordingly and recoded the data,
 - 3.5 an analysis of all codes, sub-themes, themes and patterns followed and repetitions were merged,
 - 3.6 using the networking functionality in Atlas.ti™ 8, codes, sub-themes, themes and patterns were connected to show interrelationships, and
 - 3.7 finally, we discussed the findings to make meaning of the data by interpreting the findings.
1. **Represent the data analysis:** Findings were represented in themes or categories and quotations served as evidence of the findings,
2. **Interpret the results:** During this step, major findings were summarised and interpreted to understand how they answer the research question and relate to existing literature. Limitations of the study and implications for further studies were identified, and lastly

3. **Validate the data and results:** to ensure reliability, the data was checked for credibility, dependability and conformability by using validation strategies (Creswell & Clark, 2018, p. 222).

1.9.3 Phase 3: Qualitative data: Module reflection activity

In the third phase of the research, the student's individual year-end reflections on the module were analysed. The purpose of the phase was to get their feedback on how they perceived and experienced the use of TBL, the engagement and the interprofessional learning in this module.

Table 1.4 Module reflection activity

Data collection instrument
End-of module reflection activity (§Appendix E).
Description
Part of the 2019 teaching and learning activities included an in-class module reflection activity on purposively selected teaching- and learning-related practices used in the module during the semester. The reflection activity comprised of an introduction paragraph and eight (8) open-ended questions. Although this activity was compulsory for the whole class, the reflections of only those students who gave permission that their reflections may be used for research purposes, were included in the data set.
Data collection
During the last 15 minutes of the last face-to-face session for the module (week 14-18 October 2019), students were requested to reflect on purposively selected teaching- and learning-related practices used in the module during the semester. This data-collection session was facilitated by the respective RSCM and the respective CRA. After introducing the RSCM and CRA, the lecturer left the venue to reduce the susceptibility of the students as a captive and vulnerable audience and to limit the impact of the power relation between lecturer and students. The RSCM briefly discussed the aim and purpose of the module reflection activity, explained how anonymity and confidentiality were to be ensured and thanked them for completing the reflection activity and for those who consented to participate in this research. The RSCM and CRA then distributed the reflection activity. After completing the reflection activity, students handed their activity sheet to the RSCM or CRA. All the reflection sheets were placed in a box and the box was sealed in the presence of the last student. The CRA took the sealed boxes to her office for safe keeping until collection by the PRA.

Data analysis

After collecting the sealed boxes containing the students' reflection sheets, the PRA worked through all the reflections and removed the reflections of all students who had not given written consent or had withdrawn from the research during the semester.

Working only with the reflections of willing participants, the PRA assigned a unique and unidentifiable code to each participant. To enhance anonymity and confidentiality, data was cleaned and any identifiable information removed. The cleaned reflection sheets were scanned in and released in Pdf format for data analysis after the second semester lectures ended (1 November 2019).

The data set was pulled into Atlas.ti™ 8 as a primary document, and Tesch's (1990, pp. 113-125) approach to data analysis guided the data analysis process. A detailed description of the qualitative data analysis was provided in Table 1.3.

1.10 QUALITY AND RIGOR OF THE RESEARCH

Although the accuracy and credibility of findings occur throughout the research process (Creswell & Clark, 2018, p. 278), this section discusses how I ensured the accuracy and credibility of this research's findings by using a guiding research question, and applied procedures to ensure validity and reliability of data sources (Creswell & Clark, 2018, p. 279; Poggenpoel & Myburgh, 2004, pp. 307-309; Shenton, 2004, pp. 64-69). A clear research question with two sub-questions guided this research. Qualitative data sources were analysed until data saturation was reached. During the focus group interviews, the interviewer continuously summarised and clarified what the participants said to confirm what they meant (a form of on the spot member checking). After scrutinising this study and the releasing the results, I aim to compile a report to communicate the findings. The initial plan was to invite the students to an information session where I would share the findings of the research. However, due to the Covid-19 pandemic, the PRA will email the abbreviated report will be emailed to all the participants.

Although the purpose of qualitative research is not to generalise, transferability (the ability to apply the findings in a similar environment) was ensured by providing a rich description of the context, the participants, the data generating methods and instruments and the data analysis and findings (Poggenpoel & Myburgh, 2004, p. 312; Shenton, 2004, pp. 64-69). The target population and participants were described in such a way that the context of the study was clear, without compromising anonymity and confidentiality. The research methods applied and data analysis were well documented and described to provide enough information to duplicate the study.

In this research dependability was ensured by having a clear and appropriate research process designed based on published research procedures, and proof of consistency in data gathering and analysis (Shenton, 2004, p. 61). As researcher I left a clear audit trail, made use of a co-coder during data analysis and analysed the data until saturation was reached. In addition, a form of triangulation

was acquired by using two qualitative data sets to gather information on the students' experiences of the teaching-learning environment (Shenton, 2004, p. 65).

Confirmability in teaching- and learning-related research was of special concern. In agreement with Shenton (2004, p. 64), I acknowledge that being the researcher in this study as well as the lecturer, could influence objectivity. Team-research helped to overcome excessive subjectivity and I focused on being objective during the data analysis process. Although I worked collaboratively with the focus group interviewer, willing participants were fully informed in advance of the role of the lecturer as researcher and research support members.

Rigorous scientific methods of data analysis and interpretation were applied to adhere to confirmability. The objective analysis of the written reflections and transcribed focus group interviews were confirmed through co-coding and the quantitative data was statistically analysed using descriptive statistics.

1.11 ETHICAL CONSIDERATIONS

Respect for the participants, justice and beneficence were the guiding principles to adherence to ethical practice during the research. Respect was ensured through privacy and confidentiality. To ensure justice, I treated the participants fairly during the recruitment process.

The research only commenced after ethics approval from the Health Research Ethics Committees (NWU-HREC) of the Faculty of Health Sciences of the North-West University (Ethics reference number: NWU-00014-19-S1), and the NWU's Research Data Gatekeeper Committee (RDGC) (NWU RDGC reference number: NWU-GK-2019-022).

The following section explains the role of myself as the researcher in this study and research support members, the benefits and risk for participating in this research and how data was managed during and after the research. This research was classified as medium risk as participants could feel exposed and uncomfortable in allowing their information to be used for research purposes.

1.11.1 The role of the researcher and research support team

As the researcher, I was also the lecturer responsible for the teaching of WVGW 221 on the Potchefstroom Campus. The motivation behind this research study was to improve student learning by strengthening the practice of teaching and to contribute to the body of knowledge by sharing the findings on how a medium-impact blended learning design can enhance student engagement and interprofessional collaborative learning through Team-based Learning activities.

The students were regarded as a vulnerable population as they were a captive audience in the classroom. There was a power relation between them and the lecturer. I had to take special precautions to protect the rights of participants during the research process. This implied that several precautionary measures to minimize coercion, undue influence of the vulnerable population, limit conflict of interest,

possible bias and the potential power relation were implemented. These included using a research support team to assist with the research. All communication regarding the research was administered by the PRA and the lecturer was not involved in any communication with the willing participants.

To reduce the susceptibility of the students as a captive and vulnerable audience, a research support team comprising of an RSCM (who is readily reachable and available), a CRA, a PRA, a focus group interviewer, coder and co-coder formed part of the research. I worked closely with the research support team members during the entire research process and students were made aware that should they encounter any problem regarding the research, they could contact the respective RSCM who dealt with the matter accordingly.

1.11.2 Recruitment and informed consent

Students were recruited from the 2019 WVGW 221 cohort and the study was conducted on all three campuses of the NWU. Participation in the module's normal learning and assessment activities were compulsory, however, participation in the research was voluntary. No student was discriminated against for not participating.

Although the process of recruiting participants and obtaining informed consent were discussed in detail earlier (§1.8), I deem it necessary to highlight applicable ethical principles followed in this research. Participants were adequately informed about the intended research by means of an explanatory video covering the background, purpose, aim, objectives, the data-gathering and analysis process, possible risks, benefits, compensation and safety related matters, anonymity, privacy and confidentiality, the ethics process and disclosure of research findings. The video, the informed consent form as well as all other research related supporting documents were uploaded onto the module site on eFundi fourteen (14) days prior to the beginning of the module and were available for the duration of the research. Uploading the information two weeks prior to asking the students to participate in the research gave them ample time to think about the research, their possible participation and to contact their respective RSCM should they have any questions and/or uncertainties about the research.

The RSCM also discussed the intended research with the students during the last 15 minutes of the first face-to-face session of the semester. The lecturer introduced the RSCM and left the room to reduce the susceptibility of the students as a captive and vulnerable audience. After answering any question that arose, the RSCM discussed the content of the informed consent form with the students and those who were not interested to participate in the research could leave the lecturing venue. It was also emphasized that a student could, prior to data anonymization, withdraw from the research without any consequences.

Prospective participants who were absolutely sure about participating in the research were requested to complete and sign the informed consent form in writing. On leaving the venue, willing participants

handed their informed consent form to the respective RSCM or CRA who signed it in their presence. Completed and signed informed consent forms were placed in a box, sealed in front of the last student and kept in a safe place until delivered to the PRA.

Prospective participants who needed more time to think about participating in the research and/or who wanted to contact the RSCM either telephonically, via electronic mail and/or in person regarding any uncertainties and/or questions they had, had seven (7) days to do so. On receiving clarity and certainty they completed and signed the hard copy informed consent form in the privacy of their own home. After seven (7) days the PRA posted a reminder on the module site requesting prospective willing participants, who had requested to complete the informed consent at a later stage, to please bring the written consent form to the contact session venue where the respective campus CRA's collected them and signed the informed consent in their presence. These informed consent forms were safeguarded with the other informed consent forms.

1.11.3 Data collection

1.11.3.1 Phase 1: Statistics and Gradebook data on the LMS (eFundi)

The Statistics and Gradebook functionalities on the LMS (eFundi) automatically captured student activity throughout the semester as the student logged into eFundi, accessed the content of each learning unit, completed the iRAT and viewed his/her marks on the gradebook.

The PRA made sure that the data was cleaned and removed the data of students who did not give consent and/or had withdrawn from the research. The PRA cleaned the data by removing any identifiable information and assigned a unique code to participants. By removing any identifiable information, I aimed to enhance anonymity and confidentiality. The anonymised datasheet was released after the second semester lectures ended and the lecturer had no further role to play regarding the students' teaching, learning and assessment of students.

1.11.3.2 Phase 2: Focus group interviews using a semi-structured interview schedule

Participation in the focus groups interview was entirely voluntary and no participant was discriminated against for not participating in a focus group interview. Numerous focus group interviews were scheduled towards the end of the semester and were aligned with the participants' academic timetable of participants to ensure that no participant had an academic contact session. Participants could attend a focus group interview at a date and time that suited them best.

To ensure the privacy of the participants, convenient, private and interruption-free venues on all three campuses of the NWU were identified, booked and used for the focus group interviews. Focus group interviews were conducted by an interviewer with ample experience in conducting focus group interviews. As a sign of appreciation, light snacks were served in a designated area and participants

also had access to bottled water. Before the focus group interview commenced, participants were assigned a number. Depending their preference, a card containing the number assigned to the participant was either placed in front of the participant or pinned to the shirt of a participant on either side of the chest. Assigning numbers to participants enhanced anonymity and confidentiality during the data collection, transcribing and data-analysis process.

At the inception of the interview, participants were once again informed what the focus group would entail and that due to the nature of focus groups, only partial confidentiality could be ensured. The interviewer emphasized that participation was voluntary, that participants did not have to respond and that they could withdraw from the interview at any time without any consequences. The interviewer also explained the use of the digital voice recorders for the purpose of transcription and participants were requested to verbally confirm their consent for recordings. Participants were asked if they had any questions and/or uncertainties and if they did, the interviewer addressed any questions and/or uncertainties.

All communication regarding the focus group interviews were done by the CRA. As researcher (but also as the lecturer responsible for teaching WVGW 221), I was not involved or present during the focus group interviews, thus reducing the effect the lecturer may have on the students as vulnerable group. Babbie and Banaquisto (2010, p. 36) suggests that the espoused size of a focus group should range between four to ten participants per session to generate as rich a data set as possible. A total of nine focus group interviews were scheduled, each having between three to six participants. According to the number of students registered on each campus (§1.2.1), five focus group interviews were scheduled on the Potchefstroom Campus, two on the Mafikeng Campus and two on the Vaal Triangle Campus. However, as noted previously, despite confirming attendance, some participants neglected to show up for the focus group interview, resulting in some of the groups being smaller than planned. Table 1.5 provides insight into the scheduled focus group interviews as well as the number of participants who attended the focus group interviews.

Table 1.5 Number of focus group interviews and attendees

Campus	Number	Focus group number	Number of attendees
Potchefstroom Campus	5	Focus group 1	3
		Focus group 2	4
		Focus group 3	3
		Focus group 4	6
		Focus group 5	4
Mafikeng Campus	2	Focus group 6	5
		Focus group 7	3
Vaal Triangle Campus	2	Focus group 8	1
		Focus group 9	2
Total	9	9	31

Mason (2010, p. 3) notes that "sample size becomes irrelevant as the quality of data is the measurement of its value". From the conducted focus group interviews, data became repetitive and did not provide

any new insight on the topic under investigation. Therefore, after nine interviews, it was not necessary to conduct more focus group interviews.

1.11.3.3 Phase 3: Module reflection activity

This reflective session was facilitated by the respective RSCM during the last 15 minutes of the last contact session for the module. The lecturer was not present during the reflection session thus decreasing the effect the lecturer may have had on the vulnerability of students. Completed reflection sheets were placed in a box, sealed in the presence of the last student and safe guarded in the CRA's office until collected by the PRA. Having worked through the reflection sheets, the PRA removed all the reflections of students who did not give written consent or had withdrawn from the research during the semester.

The reflection sheets of participants who gave consent were coded and any other identifiable information removed. This enhanced anonymity and confidentiality. The anonymised reflections were converted to PDF and released for data analysis after the second semester lectures had ended (1 November 2019).

1.11.4 Anticipated risks and mitigation of the anticipated risks

This research was classified as medium risk and although the research topic is non-threatening, students were classified as a vulnerable group. This research held no risk for myself as the researcher or for members of the research support team. Table 1.6 provides insight into the anticipated risks for the students and how I mitigated the anticipated risks.

Table 1.6 Anticipated risks and mitigation of the anticipated risks

Anticipated risks	Mitigation of the anticipated risks
Some students could have felt uncomfortable with their data being analysed for purposes other than teaching and learning.	No student was forced to give consent and only the data of students who volunteered was included. The process of ensuring anonymity was also adequately explained to them. The purpose of the research and the contribution of their data towards answering the research questions were clearly explained to them.
Some students could feel that completing the activities were boring and time consuming.	Activities were designed in such a way to make the completion of the activities as short, easy and user friendly as possible. No student was forced to write more than what they preferred to write when completing the module reflection activity. The module reflection activity was part of the normal class activities as it formed part of the module evaluation process.
Due to the nature of the focus group interview some participants	The process of the focus group interview was explained in detail to the participants.

could have experienced some anxiety in sharing their thoughts.	The interviewer did a short ice-breaker activity at the beginning of the focus group in an effort to alleviate the feeling of strangeness and to make participants more comfortable with the idea of sharing their thoughts. The importance of confidentiality was emphasized during the focus group interview as well as in the informed consent form. The interviewer focused on making the participants as comfortable as possible and tried to include everyone in the discussions. The interviewer made sure that the participants understood that all contributions were valuable, that there were no correct or incorrect answers, and that each individual opinion was respected.
Some willing participants could experience some discomfort when participating in a focus group interview that was digitally recorded.	The interviewer explained the rationale for digitally recording the interviews and how anonymity would be ensured. The interviewer also explained the safe storage of the data. The interviewer emphasized that participation was voluntary, that participants did not have to respond and that they could leave the focus group interview when they want. There will also be no consequences if they want to leave. Participants were reminded that I (as the researcher/lecturer) would not be present during the focus group discussions, and that no information that would enable the lecturer to identify them would be included in the data.
Some students could have felt compelled to participate and give positive feedback as they still had to pass the module.	To minimise the power relation effect, participant recruitment and informed consent were done by an RSCM and CRA who were not directly involved in the WVGW 221 module. Participants were informed that all data sources would be anonymised and participants would be assigned a code. This implied that it would not be possible to link any participant's feedback to a student.
Some students may withdraw from the study during and or at the end of the study prior to anonymising the data	The voluntary part of this research allowed for participants to withdraw from this research at any time and without any consequences prior to data anonymization. To minimise the risk of withdrawal, participants were adequately informed about when, where and how the research would be conducted, the possible risks and benefits of the research and what would be expected of them. Possible reasons for withdrawal were anticipated and as far as possible be managed to minimise withdrawal.

	To minimise the risk of withdrawal from the study, 3 x R300.00 Spur vouchers (one for each campus) was made available as a lucky draw at the end of the study.
As the researcher, I am also responsible for the teaching of WVGW 221, creating bias and a power relation.	I took cognisance and to ensure anonymity and confidentiality, the PRA was responsible for cleaning the data and removing any form of identification from the generated data. Satisfied that the data contained no identifiable information, the PRA only handed the data over to me at the end of the module and when the lecturer had no further role to play regarding the teaching and the assessment of the students. A statistician took responsibility for analysing the quantitative data. A co-coder coded the qualitative data, thus ensuring that I was not biased during the coding. In addition, the supervisor monitored the research process to ensure bias was limited and that procedures to minimise the power relation were adhered to.

1.11.5 Benefits

This research held indirect benefits for the willing participants as well as for future cohorts and the academic community. The current cohort did not benefit directly from this research; however, I am of the opinion that the findings could be used to improve future learning experiences of cohorts in the same compulsory module and large class setting. Results were used to improve the module's design and the teaching and learning strategies to enhance student engagement and foster interprofessional collaborative learning through Team-based Learning activities. The results informed the design of blended learning environments and the use of technology to enhance self-directed learning, active learning, assessment and student support.

The past few years have seen a rise in student protests questioning the quality of teaching and learning. Giving the students an opportunity to participate, I provided a platform and opportunity where students could voice their opinion and give us insight into their needs when alluding to teaching for effective learning. Findings from this research can also be used by the academic community to enhance the quality of teaching and facilitation of interprofessional collaborative learning through Team-based Learning activities in a large class setting.

1.11.5.1 Risk-benefit-ratio

The benefits of this research outweigh the risks.

1.11.5.2 Incentive and reimbursement of participants

Willing participants received no incentive to participate in this research and there were no expenses for the participants. During the focus group interview, light refreshments as well as bottled water were made available to willing participants. To minimise the risk of withdrawal from the study, 3 x R300.00 Spur vouchers (one for each campus) were availed as a lucky draw at the end of the study.

1.12 Data management, storage and destruction

1.12.1 Hard copy data

Once complete, all module reflection activity sheets were boxed, sealed and kept safe in a locked cabinet with only the PRA having access to the data. The PRA worked through the hard copy reflection activity sheets, removed the sheets of students who did not give consent or had withdrawn from the research. The reflection sheets of the students who did not consent to participate were locked away with the rest of the module teaching material and student assignments.

The reflection sheets of the students who had given consent was coded and any identifiable information removed. Thereafter, the anonymized sheets were scanned in and saved in a password protected folder on a password protected computer of the PRA. The PRA created a password protected folder on the cloud based repository of the NWU, uploaded the cleaned data set and shared the folder with me on 1 November 2019.

Both sets of reflection sheets were boxed and sealed again. The reflection sheets would be stored in a locked cupboard within the CHPE at the North-West University (Potchefstroom Campus) for a period of five (5) years. This is in line with the NWU's record management requirement. Only the PRA has access to the reflection activity sheets. After five (5) years all hard copy sheets as well as the scanned electronic sheets would be destroyed according to the North-West University's rules and regulation for data / record management. Data will be shredded by in the presence of a member of the research support team and/or a member of the ethics committee.

1.12.2 Electronic data (eData)

In the following section I will discuss the management of the electronic data (eData) which included the focus group recordings and the LMS data.

Directly after a focus group interview, all digital recordings were transferred from the recorders to the password protected computer of the PRA. Directly after the transfer, the audio files were deleted from the digital voice recorders. The PRA was the only person with access to the audio files and removed any identifiable information by renaming the file with a unique code. Using a unique sharing setting, the PRA shared the folder containing the captured audio recordings with the independent transcriber. Each participant was assigned a unique code and during the transcription of the audio files to Word format,

any identifiable information had to be removed. The code list was stored in a locked cabinet within the PRA's office and the PRA was the only person with access to the code list.

After the transcription of the audio files, the transcriber uploaded the transcribed interviews onto the shared and password protected site, where after the PRA changed the sharing setting. Satisfied that the transcribed work was of quality, the PRA provided instructions to destroy any data still in her possession.

The LMS data was generated during the semester using the Statistics and Gradebook functionalities on eFundi. At the end of the semester, after extracting the data from the LMS, the PRA cleaned the data by removing the data of the students who did not give written consent or had withdrawn from the research during the semester. The PRA then assigned codes to the participants who had given consent and removed any identifiable information. The original eData was stored on the PRA's password protected computer with only the PRA having rights to access this data.

The PRA uploaded the cleaned transcribed focus group interviews as well as LMS data onto a password protected folder and using a unique sharing setting, shared the folder with me on 1 November 2020. To ensure the right to privacy and confidentiality of participants, I took extreme care to protect the data on her computer.

Generally all printed eData will be stored in a locked cabinet for a period of five (5) years within the CHPE at the North-West University (Potchefstroom Campus). eData will be stored for a period of five (5) years on the NWU's cloud based repository. Only the PRA has access to the original data sets. After five (5) years any hard copy data sets as well as the password protected folder containing the original data set will be destroyed according to the North-West University's rules and regulations for data / record management. Hard copy data will be shredded in the presence of a member of the research support team and/or a member of the ethics committee and eData will be destroyed by the IT department of the NWU in the presence of myself (the researcher) and/or a member of the ethics committee.

1.12.3 Data usage in other and/or future studies

We asked participants for broad consent. This implies that I would like to use the data generated from this study in other and/or future teaching, learning and assessment related studies where the focus will be on investigating student engagement and interprofessional collaborative learning through Team-based Learning activities within a blended design.

I received the FAIMER-SAFRI fellowship for the period 2019-2020. Conducting a research project was part of the FAIMER-SAFRI fellowship. Objective 2 from this research study was also be used for the SAFRI research project. For this reason, the SAFRI supervisor was added as support member.

The use of the participant's data from this study in any future teaching, learning and assessment related studies will be subjected to a full ethics application, review and approval by the NWU-HREC, who will stand in on the students' behalf.

1.12.4 Data monitoring

Responsible for the overseeing the research, I continuously monitored the research process to assess the efficiency and progress of the study. Monitoring responsibilities included:

- reviewing the research protocol and any proposed revisions,
- continuously evaluating the progress and reviewing any unanticipated problems (UP's). Where applicable, inform and seek advice from the NWU-HREC and the NWU-RDGC,
- thinking about external factors that may affect the safety of participants, their willingness to be part of the study, the ethics and conduct of the study,
- reporting any problems regarding study conduct or performance that necessitates protocol modifications/amendments to the NWU-HREC,
- ensuring measures to guarantee the anonymity and confidentiality of willing participants, and
- assisting with the compilation and reviewing of the six-monthly monitoring reports.

1.13 DISSEMINATION OF THE RESULTS

After the examination of this study and the release of the results, I will compile a report to communicate the findings. The initial plan was to invite the students to an information session, where I would share the findings of the research. However, due to the Covid-19 pandemic, the PRA will email the abbreviated report to all the participants. The results will also be shared with the academic community in the form of an article in a peer reviewed journal (§Chapter 3), at the annual NWU Teaching and Learning virtual conference in October 2020, and at the Sub-Saharan Africa-FAIMER Regional Institute (SAFRI) residential session in early March 2020.

1.14 ORGANISATION OF CHAPTERS

This dissertation was written in article format. This implies that this dissertation will be presented in a multi-part format with the parts being presented as chapters.

In Chapter 1, Introduction and Orientation, I provided the background to this study as well as discussed the problem under investigation. I discussed the purpose, research question, objectives and sub-questions. I provided insight into the research design and methodology used in this study which

included a discussion on the study population, recruitment and advocating the intended research. I provided a detailed discussion on the research instruments used for data collection and how data was analysed to ensure quality and rigorous research. I discussed various ethics related aspects applicable to this study and concluded with an indication on how I plan on disseminating the findings.

Chapter 2 serves as theoretical framework for the chapters to follow. Chapter 2 starts with an overview of how increased access to higher education and the shift towards “health care as a team sport” are challenging the way health educators prepare students as health professionals. I discuss how adopting a Blended and Team-based Learning approach can firstly, address the teaching and learning challenges I am facing in the module WVGW 221, and secondly, could contribute to the development of emerging health professionals who would be able to work together in an interprofessional and collaborative health care environment.

Chapter 3 contains the manuscript that will be submitted to an accredited, peer reviewed journal. The article addresses the objectives as set out in Chapter 1 (§1.5). Drawing from the literature, written reflections and focus group interviews, I discussed how a medium-impact blend and Team-based Learning approach can enhance student engagement and interprofessional collaborative learning in a second-year compulsory, philosophical module with a 1000+ students, representative from fourteen health and social care disciplines. I claim that the unique context and challenges I face in this module makes a unique contribution to the existing body of knowledge on TBL.

The manuscript is for submission to the South African Journal of Higher Education (SAJHE) and is presented in accordance with the specified guidelines for the journal, as well as the [instructions for authors](#) (§Appendix F). Exceptions were made for the prescribed margins, line-spacing, font and headings to adhere to the North-West University protocol to maintain uniformity of the dissertation. Although the journal requires the use of the Chicago Manual of Style author-date system as referencing style, Endnote (the referencing software used in this dissertation), does not allow for the use of two different referencing styles in one document. For this reason, the same referencing style was used throughout the dissertation. Prior to submitting the manuscript to the SAJHE, the referencing style will be changed in Endnote to the Chicago Manual of Style author-date system, as required by the journal. References in the manuscript are included at the end of the manuscript as well as in the final reference list at the end of the dissertation.

Chapter 4 contains the conclusion, limitations and recommendations. In this chapter I provide evidence to show how this study has met the espoused objectives, I share the limitations of the study and make some recommendations for future research.

CHAPTER 2

THEORETICAL AND CONTEXTUAL FRAMEWORK

2.1 Introduction

In light of this dissertation and for future reference in the manuscript and conclusion chapters to follow (Chapter 3 and 4), the purpose of this chapter is not to summarise the extensive body of literature on the key concepts applicable to this study, but to provide a brief overview of student engagement, interprofessional education, blended learning and Team-based Learning in the context of this study. I discuss the importance of- and need for pedagogical innovation in health education and provide examples of how I went about to adhere to this call. Enhanced student engagement and interprofessional collaborative learning are at the heart of this discussion as they are critical in the preparation of undergraduate health students for the workplace where they will be expected to function in a collaborative, team-based care environment.

I explore the use of a blended learning approach and discuss how I went about to design a medium-impact blend to optimise the use of information technology for learning and enhance student engagement. I conclude with a discussion on Team-based Learning and how I applied this student- and learning-centred, small group learning strategy to enhance student engagement and interprofessional collaborative learning and in doing so, address selected teaching and learning related challenges I was facing as health educator in a compulsory module and large class setting.

2.2 Challenges related to preparing students as health care professionals

Higher education is in the midst of another transformation and is shaped by various economic, demographic, social, political and technological forces (Mintz, 2013, p. 1). In South Africa, higher education is seen as a vehicle for socio-economic transformation and as a result the demand for access to higher education has increased over the last few years (Council on Higher Education, 2016, p. 8). Pressures surrounding increased access, a larger and more diverse student body, changing funding patterns, budgetary constraints and limited teaching resources are creating unprecedented teaching- and learning-related challenges, forcing health educators to examine the way I prepare our graduates for the workplace (Academy of Science in South Africa, 2018, p. 45; Council on Higher Education, 2016, p. 8).

Graduates entering the health care environment should be well trained, appropriately skilled and able to function in a collaborative, team-based care environment to deliver all-inclusive,

preventive, holistic health care (Sadler et al., 2018, p. xxiv). Shifts within the health care sector are calling for a stronger interprofessional and collaborative perspective on health professions education using team-based approaches (Cuff, 2016, p. 82). Health educators have to meet this responsibility within the field of health science education and act as agents of change. This implies being responsive, continuously reflecting on their role and responsibilities, rethinking teaching practices, incorporate transformative educational strategies into their teaching and enhancing their scholarship (Academy of Science in South Africa, 2018, p. 140). Delivering graduates with the essential knowledge, skills and attributes fit for the 21st century, requires pedagogic innovation – which the Council on Higher Education (2007, p. 62) defines as approaches to pedagogy that emphasize “doing things differently”.

Magaña (as cited in Cuff, 2016, p. 7) points out that health educators should rethink curricula and the facilitation of student learning to “nurture a culture of critical inquiry”. Teaching and learning should focus on competency development as well as creating creative and imaginative thinkers and problem solvers. Magaña further states that the health education should focus on active learning, student engagement and interprofessional learning (Cuff, 2016, p. 8).

2.2.1 Enhancing student engagement

Rooted in enhancing student learning, student engagement has a long history. Three main schools of thought exist, namely 1) engagement through intervention to prevent dropout (Finn, 1989, p. 34), 2) engagement for institutional reform to enhance student outcomes across the academic, emotional, behavioural and cognition domains (Fredricks et al., 2004, pp. 60-61), and more recently, 3) linking student engagement to motivational theory and motivational dynamics (Skinner et al., 2008, p. 769; Skinner & Pitzer, 2012, pp. 22-23).

From the extensive body of research, it is evident that student engagement is considered as essential theoretical model for comprehending student graduation with sufficient graduate attributes to enter the workplace (Reschly & Christenson, 2012, pp. 5, 9). There is consensus in literature that engaged students are more self-regulated, enjoy being challenged, are more positive, enjoy learning, push themselves to perform academically and their academic achievement also increases (Bender, 2017, p. 1).

There is also consensus in the literature that student engagement is a multidimensional construct. However, there seems to be no consensus regarding the number of constructs within this multidimensionality due to the complex interplay and blurred boundaries between the constructs (Flint & Millard, 2018, p. 22). In this study I draw on the multidimensional clustering by Fredricks et al. (2004, pp. 60-61). The authors cluster student engagement around the behavioural,

cognitive, and emotional domain. In this study, behavioural engagement refers to participation in academic activities e.g. attendance, participation and effort. Emotional engagement refers to the positive and/or negative interactions a person has with others and subjects within the learning environment e.g. peer relationships. Cognitive engagement refers to “personal investment, self-regulation, and striving for mastery” (Appleton et al., 2008, pp. 371-372; Fredricks et al., 2004, pp. 60-61). In order to understand how a medium-impact blended learning design can enhance student engagement, Reschly and Christenson (2012, p. v) advise that whenever exploring student engagement in any context, researchers have to take cognisance of the multidimensional nature of student engagement and the interplay between these domains/constructs.

Defining student engagement varies extensively in the literature. In the South African Survey of Student Engagement, Strydom and Mentz (2010, p. 3) maintain that student engagement pivots around two key components namely “what students do (the time and energy they devote to educationally purposive activities), and what institutions do (the extent to which institutions employ effective educational practices to induce students to do the right things)”. Solomonides et al. (2012, p. 12) add a relational dimension to the multidimensionality of student engagement where the authors argue that the question one needs to ask is with what (or whom) students are engaging e.g. content, pedagogic activities, peers, academic staff, their professional identity, etc.? Bender (2017, p. 2) proposes that engagement can be defined as “students’ cognitive investment in, active participation with, and emotional commitment to learning particular content”. Drawing on various understandings of student engagement, student engagement in this study refers to a student’s level of involvement or interest in their learning process that can be linked to a desired outcome.

Student engagement are at the heart of TBL as students are actively involved with the content, the lecturer and their peers and get the opportunity to work and learn with- and from one another (Reimschisel et al., 2017, p. 1228). To achieve optimal student engagement, Loftus and Mckenzie (2013, p. 123) point out that the design of learning activities need to closely “mirror or accommodate the way humans work, cognitively, socially, physically, emotionally, spiritually”. Bender (2017, p. 3) concur and states that the majority of research focuses on student engagement as an essential element for increased student achievement and how a strategy impacts students’ achievement. Bender highlights the need for research investigating how specific instructional strategies increases student engagement (Bender, 2017, p. 3). Consequently, the objectives of this study is to explore how TBL as instructional strategy can enhance student engagement and interprofessional collaborative learning.

2.2.2 Interprofessional Education (IPE) to foster engagement and collaborative learning

As previously discussed (§1.3), the increasing complexity of the rapidly evolving health care landscape, the shift towards “health care as a team sport” and the call for an interprofessional and collaborative perspective on health professions education, using team-based approaches, are challenging the way health educators prepare students as health professionals (Academy of Science in South Africa, 2018, p. 110; Kayingo & McCoy Hass, 2018, p. xxvii; Sadler et al., 2018, p. 1).

The WHO defines Interprofessional Education (IPE) as “students from two or more professions learn[ing] about, from, and with each other to enable effective collaboration and improve health outcomes” (World Health Organization, 2010, p. 13). Thistlethwaite (2012, p. 59) emphasises the interactive nature of IPE and states that the ‘with, from and about’ are fundamental to the learning experience. The author further feels strongly that IPE is not “simply bringing different professional groups and students together to learn in the same setting” (Thistlethwaite, 2012, p. 59).

According to the WHO, IPE is an essential and innovative strategy to prepare students from different health professions for a “collaborative practice-ready” work environment (World Health Organization, 2010, p. 13). The WHO acknowledges the importance of IPE and argue that there is sufficient evidence confirming that collaborative practice does contribute to the strengthening of health services and systems and improved health outcomes (Interprofessional Education Collaborative Expert Panel, 2011, p. 10).

IPE can be introduced as a pre-qualifying course, a post-qualifying course or as part of workplace-based in-service learning (Barr & Low, 2013, p. 4; World Health Organization, 2010, p. 27). A pre-qualifying IPE course is part of a professional qualification and establishes a foundation for collaborative practice and mutual understanding as students from different professions get the opportunity to share knowledge and skills (Barr & Low, 2013, p. 6; Murray-Davis et al., 2012, p. 290). Post-qualifying courses are undertaken after a professional qualification and focuses on the advancement of knowledge and skills (Barr & Low, 2013, pp. 3, 13). Work-based IPE happens when members from different professions work together and during this collaborative learning opportunity, they get the opportunity to share knowledge and perspectives and learn more about each other’s professions (Barr & Low, 2013, p. 14).

Oandasan and Reeves (2005, p. 22) claim that there is a large number of published literature on the development and delivery of IPE, confirming the consensus surrounding what IPE is and what it entails. However, how best to combine elements to create the most effective IPE learning experience within a specific context, remains a challenge. Scheduling, finding sufficient place

and time for students to engage in interprofessional activities, limited resources and challenges to incorporate IPE within curricula are just some of the difficulties surrounding the successful implementation of IPE (Black et al., 2016, p. 19).

Olson and Bialocerkowski (2014, p. 237) point out that the vast majority of IPE literature focuses on post-qualification, clinic-based interprofessional learning with the primary foci on medicine and nursing and it is therefore uncertain to which extent (if any), these results can be applied to pre-qualification courses. The authors further suggest that there is a need for further inquiry into pre-qualification and allied health university-based IPE (Olson & Bialocerkowski, 2014, p. 237). Bainbridge (2014, p. 230) holds a different view and propounds the view that although the scope of practice of many allied health professions differ, IPE in allied health should be no different to IPE in medical disciplines as the underpinning principles of IPE apply across all professions. Although the focus in this study is not on allied health care, I concur with Bainbridge that the underpinning principles of IPE should apply across all health professions. With professional boundaries increasingly blurring to ensure holistic health care, I hold the view that pre-qualification, university-based IPE provides an ideal environment and opportunity for health educators to create interprofessional learning opportunities where students (irrespective of their health discipline) can learn about, from, and with each other.

Globally the importance of IPE in undergraduate health and social care qualifications are recognised and as a result, included in curricula (Lohenry et al., 2018, p. 45; Stephens & Ormandy, 2018, p. 1). In Africa IPE is also gaining momentum. In 2015, the African Interprofessional Education Network (AfriPEN) was established. The aim of AfriPEN is to create IPE awareness, develop collaborative IPE networks and facilitate the integration of IPE health curricula and daily practice (African Interprofessional Education Network, 2015). In 2018, the Academy of Science in South Africa proposed that “IPE should be integrated into existing curricula and modules on a continuum from early exposure to other professions through to collaborative practice in teams in the practice setting” (Academy of Science in South Africa, 2018, p. 19).

Exploring how IPE is conducted at HEIs in South Africa revealed that IPE practices vary to a large extent. Examples of how IPE is conducted at HEIs in South Africa include, but is not limited to, the following:

- University of the Western Cape (UWC): At UWC, IPE is embedded as core modules in the first-, second- and third-year curriculum. The purpose of these selected core modules are to prepare students from eight disciplines¹ for the fourth-year level interprofessional practice.

¹ Physiotherapy, Occupational therapy, Nursing, Social Work, Dietetics, Natural Medicine, Sport science

Teaching and learning activities range from working collaboratively in a community setting to engaging in in-class activities such as role-play, case studies and a World Café (Waggie & Laattoe, 2014, p. 1).

- University of the Free State (UFS): Annually the UFS runs a three week IPE orientation series. Students from eight disciplines² are divided into interprofessional groups and work collaboratively on various activities such as simulations, digital story boarding and discussions to equip the students to work within the rural community (University of the Free State, 2020, pp. 1-2).
- University of KwaZulu-Natal (UKZN): At UKZN, students from eight disciplines³ are trained at campus clinics and specific off-campus sites. Under supervision and depending on disciplinary requirements, students are exposed over a period of two to six weeks to unstructured and informal interprofessional community-based collaborative activities e.g. health awareness programmes, screenings and service delivery (Moodley & Singh, 2018, p. 20).
- Stellenbosch University (SU): Working alongside local Community Health Workers (CHWs), final year students from five disciplines⁴ work collaboratively as part of the Collaborative Care Project in Avian Park, an informal settlement outside Worcester. Interprofessional activities at the student-run health outpost and service-learning centre include “rehabilitation sessions, hearing screening, dietary assessments and advice, support groups, six monthly follow-up and script renewal for persons with chronic diseases” and twice-weekly collaborative care interprofessional team household visits (Muller et al., 2019, p. 3).
- University of South Africa (UNISA): At UNISA, final-year Occupational Therapy, Physiotherapy and Speech Therapy students work collaboratively in interprofessional teams at a care centre. Under the supervision of a clinical supervisor, each interprofessional team is assigned two to three patients which they have to treat one morning per week for a period of three weeks. Interprofessional teams are also expected to meet after each session, to evaluate the patient’s progress, to plan for the next session and to reflect on their learning experiences in the larger group (Van Wyk & De Beer, 2017, pp. 35-36).

and Recreation (Waggie & Laattoe, 2014, p. 1).

² Biokinetics, Physiotherapy, Nutrition and Dietetics, Occupational Therapy, Clinical Medicine, Nursing, Social Work and Radiography (University of the Free State, 2020, p. 1).

³ Audiology, Biokinetics, Exercise and Leisure Sciences, Dentistry, Occupational Therapy, Optometry, Pharmaceutical Sciences, Physiotherapy, Speech Language Pathology (Moodley & Singh, 2018).

⁴ Medicine, Occupational Therapy, Physiotherapy, Speech-Language and Hearing, Human Nutrition and Social Work. Nursing withdrew in 2013 (Muller et al., 2019, p. 3).

- At the North-West University, second-year health and social care students get the opportunity to engage with each other in a structured manner in the compulsory second semester module, WVGW 221. In selected disciplines, for example nursing, students also get the opportunity to engage with members from other professions during work-based IPE. However, it needs to be noted that work-based IPE are currently not structured and coordinated on a formal basis. Where students move into the community as part of their work integrated learning (WIL), IPE currently happens mostly informally. In the discussion to follow I will elaborate on how IPE is infused in the second-year health and social care curricula.

2.2.3 IPE in WVGW 221

Numerous scholars publishing in the field of IPE argue that small group learning in large classes cannot replace the learning that happens when health professionals work in interprofessional small groups within a real world environment (Barr & Low, 2013, p. 8). Although acknowledging these views, I want to argue that not all students enrolled in health and social care disciplines are exposed to interprofessional learning opportunities such as WIL and Work-based IPE where they get the opportunity to work collaboratively with health professionals to develop and/or enhance their interprofessional knowledge, skills and competencies.

Reeves et al. (2012, p. 235) recommend that IPE “be infused early and often in the curriculum with initiatives to address combinations of knowledge, attitudes, skills, and habits”. Stephens and Ormandy (2018, p. 1) concur and add that “if health professionals are trained together, they should be better placed to work collaboratively post qualifying”. Against this backdrop, I view the second-year, compulsory, philosophy module as the ideal environment to introduce students to IPE and to cultivate an understanding of the importance of working collaboratively with other professions when entering the health care environment (World Health Organization, 2010, p. 10).

The purpose of the module WVGW 221 is to “provide students with an opportunity to function as a member of an interprofessional team consisting of students from different subject disciplines in the Faculty of Health Sciences, thereby exposing them to interprofessional collaboration, respect and appreciation” (Heymans et al., 2019, p. 3). Within this framework, the lecturing team reimagined the teaching approach within this module to create and foster an interprofessional learning culture where students can learn ‘with, from and about’ one another. The lecturing team introduced IPE using a Team-based Learning (TBL) approach (§2.4 - 2.10). Over a period of twelve weeks, students worked in their assigned interprofessional teams, each drawing from their own disciplinary knowledge and practices, to provide a workable solution to a specific case-based scenario (§2.6 - 2.10). In-class activities aimed to stimulate interprofessional learning, enhance interprofessional collaboration, communication and team working skills and to create change

agents for interprofessional learning that will, when entering the workplace after graduation, value the contribution that interprofessional collaboration can make to strengthen patient care.

In the discussion to follow I will provide a brief overview of the notion of blended learning and how I exploit the power of information technology and blended learning for learning to enhance student engagement and interprofessional collaborative learning.

2.3 Blended learning

Developments in the field of Information and Communication Technology (ICT) and, in particular, the use of technology for learning in transforming higher education is well-known (Altbach et al., 2009, p. 125). The Lancet Commission report *“Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World”* (Frenk et al., 2010, p. 1924) and the *“Reconceptualising Health Professions Education in South Africa Consensus report”* (Academy of Science in South Africa, 2018, p. 82) emphasize the importance to exploit the power of ICT and, in particular blended learning and/or eLearning to optimise learning and to address the challenges health educators face when preparing health professionals.

The WHO advocates for the use of blended learning strategies for undergraduate HPE and state that it is up to health professions educators to find innovative ways to adapt their traditional face-to-face approach into a blended learning approach (Al-Shorbaji et al., 2015, p. 79; West et al., 2013, p. 252). Blended learning is widely researched with a comprehensive body of literature. The aim of the following section is not to give a detailed discussion of the body of scholarly research, but to provide insight into the use of a medium-impact blend to enhance student engagement and interprofessional collaborative learning in the module WVGW 221.

2.3.1 Defining blended learning

From the literature review it is evident that, despite the popularity of blended learning as teaching phenomenon, individuals have a different understandings of what blended learning is and what it entails (Alammary et al., 2014, pp. 440-443; Garrison & Vaughan, 2011, pp. 5, 45). Alammary et al. (2014, pp. 440-443) investigated how blended learning is defined in the literature and concluded that irrespective of how blended learning is defined by scholars, it hinges around two principles. Firstly, it is a process that is pedagogically based and secondly, the result is a product (course / module) with a combination of face-to-face and online learning activities.

The NWU defines blended learning as an “innovative teaching and learning design that combines face-to-face and online teaching and learning approaches. It integrates thoughtfully selected,

complementary teaching and learning methodologies and technologies, based on educational merit as determined by factors such as the pedagogical context, the nature of the discipline and the learning material, and the profile of the students, so that the strengths of each are blended into a unique learning experience” (North-West University, 2016, p. 8). Drawing from Alammery et al. (2014, p. 443) as well as how the NWU definition, blended learning in this study refers to a *pedagogically sound teaching and learning design that within a given context, combines the best of online learning and face-to-face learning to optimise student learning* (Figure 2.1).

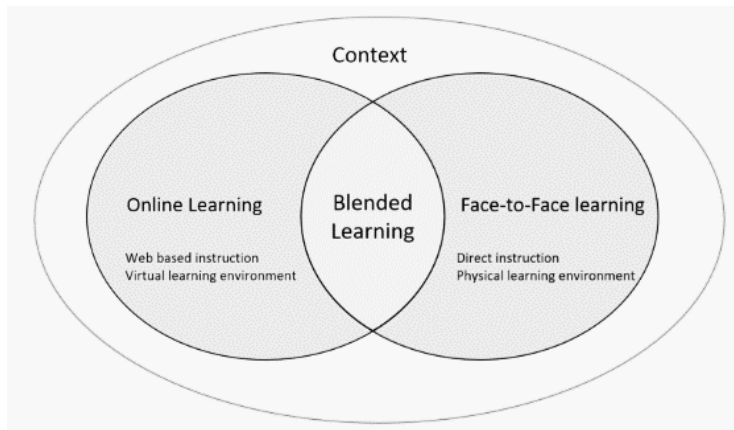


Figure 2.1 Blended learning

One of the key drives behind adopting a blended approach to teaching and learning pivots around the need to use classroom time more effectively to allow students to actively engage with the content, their peers as well as the lecturer. This implied the thoughtful selection of technology that is fit for purpose. If used correctly, the effective use of the online environment can allow for differentiation of teaching to address individual learning needs and feedback for learning (Alammery et al., 2014, p. 444).

2.3.2 Models of blended learning

Numerous models of blended learning are discussed in literature (Alammery et al., 2014, p. 443; Cheung et al., 2010; Saliba et al., 2013, p. 13; White, 2018, p. 108). For the purpose of this study I draw from research by Staker and Horn (2012) who, depending on the combination of online and face-to-face components, categorise blended learning into four categories namely the Rotation-, Flex-, Self-blend- and Enriched Virtual model (Figure 2.2). The Flipped-Classroom, a sub-model of the Rotation model, is of particular importance, as it is this sub-model that was applied in the medium-impact blended learning approach of the WVGW 221 module. Only a brief overview of the Rotation model will be provided before I discuss the Flipped-Classroom model as a sub-model in detail considering its direct relevance to this study.

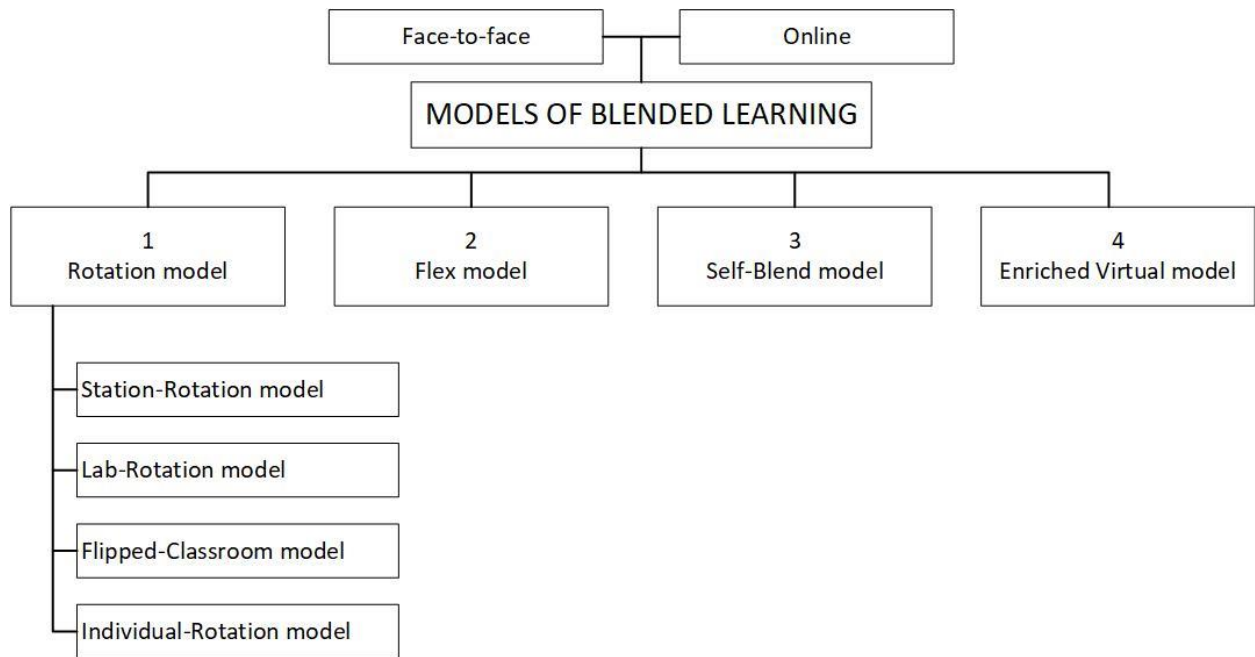


Figure 2.2 Blended learning model (Staker & Horn, 2012)

2.3.2.1 Rotation model

Within the Rotation model, where face-to-face and online learning is alternated, Staker and Horn (2012) identified four different rotation sub-models namely the Station-Rotation-, Lab-Rotation, Flipped-Classroom and Individual-Rotation model (Figure 2.2).

2.3.2.1.1 Station-Rotation model

In the Station-Rotation model, learning activities within the face-to-face learning environment are divided into stations. Activities at the different learning stations vary between small group instruction, individual activities and working online. Students rotate according to a fixed plan or at the educator's discretion (Govindaraj & Silverajah, 2017; Staker & Horn, 2012; Walne, 2012, p. 7)

2.3.2.1.2 Lab-Rotation model

Within the Lab-Rotation model, students start in a face-to-face learning environment, then rotate to various learning laboratories to complete online learning activities and then meet up again in the face-to-face environment for learning activities. Rotation works on a fixed schedule (Staker & Horn, 2012; Walne, 2012, p. 7).

2.3.2.1.3 Individual-Rotation model

Within the Individual-Rotation model, students rotate between the face-to-face and online learning environment to complete learning activities. The rotation schedule is not fixed and can be customised according to the student's individual learning needs. However, learning activities in both modalities must be completed within a given time frame (Staker & Horn, 2012; Walne, 2012, pp. 7-8).

2.3.2.1.4 Flipped-Classroom model

Giving the context of this study (§1.2.1), the Flipped-Classroom model is used as primary blended learning model. The flipped classroom approach has a lengthy history and started gaining momentum in the early 2000s when Lage et al. (2000, p. 32) started using the concept of *inverted classroom*. Today, the extensive body of scholarly research and publications confirm that flipped learning by means of a flipped classroom is well grounded in theory and there is sufficient evidence that it promotes active learning (Bender, 2017, p. 3; Nichols, 2018, p. 80).

Within the Flipped-Classroom model, students engage in a structured learning activity in the group- or individual learning space which can either be in the face-to-face and/or online learning environment (Talbert, 2017, p. 20). The online learning environment is populated with learning resources and activities and students are required to prepare before attending the face-to-face session (Staker & Horn, 2012). The Flipped-Classroom model enables students to work within the individual learning space through the learning activities in a place, time and at a pace that is convenient to them (Talbert, 2017, p. 20). Because students have access to the learning material before the face-to-face session, they can engage with the content as many times as deemed necessary (Govindaraj & Silverajah, 2017).

Using a Flipped-Classroom model, lecturers can optimize face-to-face class time to facilitate learning and enhance student engagement with peers, the lecturer and content within the group learning space. Because students worked through the content prior to the face-to-face session, face-to-face time can be used for active learning, collaborative learning, hands-on application of content and for the enrichment of 21st century skills⁵ (Govindaraj & Silverajah, 2017; Picciano, 2006, p. 99; Saliba et al., 2013, p. 13). Adopting a flipped approach changes the role and responsibilities of both the lecturer and the student. Within the flipped approach the lecturer takes

⁵ In this study 21st Century skills refer to “the core abilities individuals need to succeed in their daily encounters during the Information Age. They are *learning skills* (critical thinking, creativity, collaboration, communication), *literacy skills* (information literacy, media literacy technology literacy), and *life skills* (flexibility, leadership, initiative, productivity, social skills)” (Applied educational systems, n.d).

on the role of a guide and facilitator of learning. The responsibility of the student changes to taking ownership of their own learning (Margulieux et al., 2013, p. 4).

Talbert (2017) adds a refreshing perspective. The author claims that in many higher education institutions, lecturing is still used as the primary method of instruction during face-to-face time. As the content expert, the lecturer explains the content and in most cases, the student listens passively. As a result, students perceive the content as easy. However, when alone and with limited support from the content expert, students are expected to apply the content in homework activities and/or doing an assignment. Within their individual learning space students often grapple with applying the content and the same content is now perceived as difficult and/or challenging.

Talbert (2017, pp. 17-24) holds the view that flipped classroom is not an instructional method but rather a method of design. It encapsulates the way space⁶, time and activities are designed to enhance learning and not only about what happens in or outside the classroom. The author also emphasizes that flipped *learning* should be the focus and not flipped *classroom*. Talbert (2017, p. 20) defines flipped learning as “a pedagogical approach where first contact with new concepts moves from the group learning space⁷ to the individual learning space⁸ in the form of structured activity, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter”.

The decision to adopt a flipped learning approach in the module WVGW 221 was steered by several reasons. The reasons included:

- the teaching philosophy of the lecturing team. As part of a lecturing team that values a learning-centred approach, I view a learning-centred approach as essential in student learning. Underpinned in social constructivism and humanising pedagogy, I believe that students are unique and transports this uniqueness into the classroom. By engaging with others during the learning process, they are exposed to diverse viewpoints and from this construct their own understanding. The role of the lecturer is to not tell our students what to

⁶ Drawing on the work of Talbert (2017, p. 9), the word “space” is not limited to a physical space. It includes the physical, emotional, intellectual and psychological context when the student engages with the learning material, the learning activities and doing the assessment (Talbert, 2017, p. 9).

⁷ Group learning space refers to “the context in which students operate when they are working with a formal group as part of the class” (Talbert, 2017, p. 10).

⁸ Individual learning space refers to “the context in which a student operate when they are working mainly by themselves or in a small informal learning group that meets apart from a formal class meeting” (Talbert, 2017, p. 9).

think, but to scaffold their learning and create learning opportunities and a learning culture where students can expand their understanding (Stewart, 2015, pp. 10-11),

- the pedagogical need of the lecturing team to utilise face-to-face time more effectively by creating a small group collaborative learning space where students have the opportunity to actively engage with the content, their peers and apply the theory to practice,
- the responsibility of the lecturing team to prepare our students for the workplace. As health professionals, they will be required to work collaboratively as part of an interprofessional team. During face-to-face time our students get the opportunity to work with and learn from students from other health related disciplines in an interprofessional learning environment,
- to achieve the aims of the module. As part of the lecturing team that believes that a Flipped-Classroom approach was the most appropriate way to achieve the aims of the module, I concur that face-to-face time should be used for active learning. During face-to-face time, students have the opportunity to engage critically, philosophically and collaboratively with health related topics from different frameworks of thought. Using face-to-face time for student-to-student engagement expose students to diverse disciplinary and individual ways of knowing, being and doing,
- to support the NWU to reach its objectives as outlined in the Teaching and Learning Strategy, the lecturing team realises the importance of creating an enabling and inclusive blended learning environment to accommodate students' diverse learning needs⁹, and assist in the development of graduate attributes and 21st century skills (North-West University, 2016, pp. 11-13), and
- to optimally utilise available infrastructure and technology such as the NWU's LMS (eFundi), the World Wide Web and software to enhance student learning.

To achieve these objectives, the Learning Management System (LMS) was populated with the content and pre-class preparation activities. Within the online learning environment, students could engage with the content as many times as deemed necessary and complete the pre-class activities in a place, time and pace that is convenient to them.

⁹ In this study I draw from Fry et al. (2009, p. 114) who defines learning needs as "a personal journey that all students must undertake from their level of knowledge and skills at the point of entry to the level required to succeed in their chosen courses".

2.3.3 Design for blended learning

There is sufficient literature that highlights the need and advantages of adopting a blended learning approach. Alammmary et al. (2014) argue that we have surpassed the stage where the question is whether to blend or not. Given the varying contextual factors, the conundrum now seems to be “How to design an effective blend?” (Alammmary et al., 2014, p. 440).

In a study exploring different blended learning design approaches, Alammmary et al. (2014, p. 443) identified three distinct design approaches namely a low-impact, medium-impact and high-impact blend. The approaches were classified according to the potential changes it would have on the curriculum and on the students’ learning experience (Figure 2.3). For background purposes I will provide a brief overview of the three design approaches. However, in this study I adopted a medium-impact design approach and I will discuss the design of the medium-impact blend in more detail in paragraph 2.3.4.

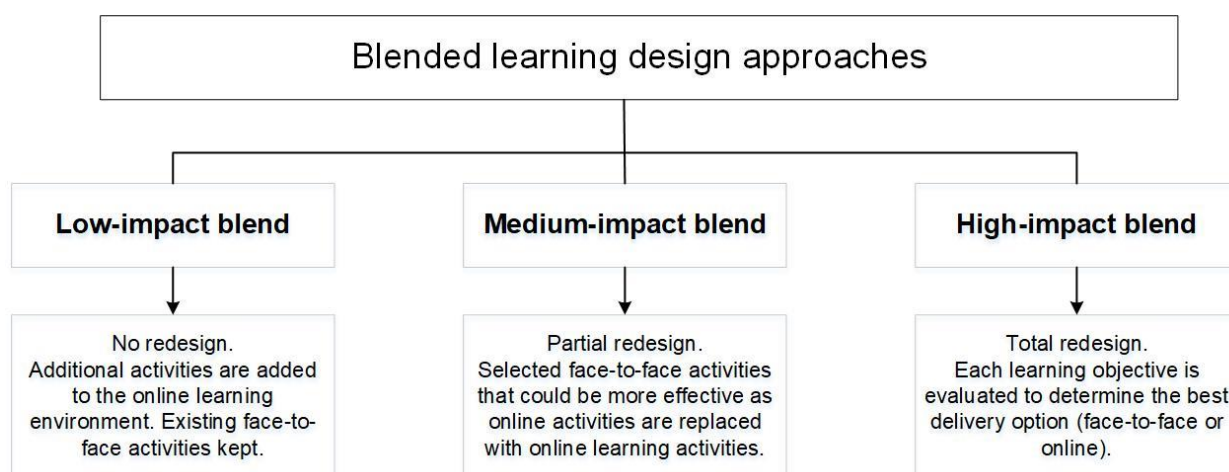


Figure 2.3 Blended learning design approaches (Alammmary et al., 2014)

2.3.3.1 Low-impact blend

When opting for a low-impact design approach, additional online learning activities are added to a traditional face-to-face offering without eliminating any of the existing activities. In many cases the decision to design a low-impact blend pivots around seeking the advantages of blended learning without spending a large amount of time and effort to rethinking the entire learning design. One of the main risks when opting for a low-impact blend is that the adding of extra online activities could easily lead to an overloaded curriculum (Garrison & Vaughan, 2011, p. 5; Kaleta et al., 2007, p. 43). Lecturers with limited experience in designing a blended curriculum may consider designing a low-impact blend as a quicker and less complex process. Adding to the

existing curriculum, the low risk of failure, limited design experience in blended learning are seen as the reasons why early adopters pursue the development of a low-impact blend (Alammary et al., 2014, pp. 444-445).

When designing a low-impact blend curriculum, developers should have appropriate technological knowledge to select the most appropriate technology tool to address the specific pedagogical need. They should also have applicable technological skills to support students to use appropriate technological tools during learning (Cennamo et al., 2014, pp. 12, 87, 95).

2.3.3.2 Medium-impact blend

Developing a medium-impact blend entails evaluating the existing face-to-face activities to determine which of these activities could be more effective as online activities. Guided by the experience in teaching the module, selected face-to-face activities are redesigned for the online environment and/or replaced by alternative online learning activities. The decision to adopt a medium-impact blend is steered by a specific pedagogical need and time is spent on rethinking parts of the learning design (Alammary et al., 2014, pp. 445-446; Garrison & Vaughan, 2011, p. 8). Designing a medium-impact blend requires some confidence, adequate knowledge about blended learning and the use of technology to enhance student learning. However, as the lecturer(s) gain more knowledge, experience and confidence, the design process gets easier, and they become more dedicated and willing to experiment and implement pedagogically sound changes (Alammary et al., 2014, pp. 445-446; Kaleta et al., 2007, p. 48).

Finding the right balance between complementary online and face-to-face activities for optimal student learning takes time and requires detailed planning, pedagogically sound decision-making and continuous evaluation (Alammary et al., 2014, pp. 445-446).

2.3.3.3 High-impact blend

In a high-impact blend, the curriculum is designed from scratch and entails a total redesign. Starting with a blank canvas, curriculum developers examine each learning objective and decide on the mode of delivery (face-to-face or online) to best reach the espoused outcome and to ensure the most effective blend. Constructively aligning the module outcomes, the learning outcomes, learning material, learning activities and assessment in both modes of delivery when designing a high-impact blend are also essential (Alammary et al., 2014, pp. 447-448; Biggs, 1999, p. 62; Biggs & Tang, 2007, p. 17). The decision to adopt a high-impact blend is steered by specific pedagogical needs and sufficient time is spent on rethinking and redesigning the entire learning design. It also provides an opportunity to address problems in the existing curriculum, optimise

the benefits of blended learning and to better meet the students' needs (Alammary et al., 2014, p. 447; Garrison & Vaughan, 2011, pp. 10, 42; Picciano, 2006, pp. 96, 99).

Designing a high-impact blend holds a higher risk of failure. Therefore, it requires confidence, extensive knowledge, experience and skills in blended learning, curriculum design and the use of technology for learning and dedication. However, as the lecturer(s) gain more knowledge, experience and confidence, the design process gets easier, they grow more dedicated and willing to experiment and implement pedagogically sound changes (Alammary et al., 2014, p. 448; Cheung et al., 2010; Garrison & Vaughan, 2011, pp. 18, 32; Kaleta et al., 2007, p. 11).

2.3.4 Designing a medium-impact blend for WVGW 221

Before 2019, the WVGW 221 module was presented in a low impact blend format. An eLearning site was created on the NWU's Learning Management System (LMS) and structured according to study units. Voice-over technology was used to capture lecturer explanations of the PowerPoint content. Learning material which included articles, the voice-over PowerPoints and videos were uploaded onto the LMS. As part of the flipped classroom approach students were requested to study the uploaded content. Face-to-face time was used for theoretical lectures where the lecturers explained the PowerPoint that was uploaded onto the LMS. In-class activities included class discussions as well as traditional question and answering should students have uncertainties. There were no online assessment activities and assessments included formal tests, an individual portfolio as well as a theoretical multidisciplinary health promotion group project. The group project was handed in at the end of the semester, group work took place outside the classroom and group members were self-selected. This low-impact blend set the foundation for the design, development and implementation of the medium-impact blend in 2019.

The design of the medium-impact blend started in November 2018 and was driven by numerous contextual factors, challenges and needs (§1.2, 1.2.1, 2.2, 2.3, 2.3.4). The unique context, the nature of the module, as well as the profile of students registered for this compulsory module, required a bespoke design approach. Realising that there is no immediate solution to address the complexity surrounding the module, sufficient time was spent on analysing and rethinking the learning outcomes, material, activities, assessment methods, and available educational technologies to ensure the seamless integration of online and face-to-face activities. The aim was to rethink the current low-impact blend and design a medium-impact blend. However, constraining to the design was the lack of pre-defined standards in literature as well as at institutional level to guide decision-making as to the percentage of change recommended when designing a medium-impact blend.

Increased student engagement, interprofessional collaborative learning and the development of knowledgeable and skilled health professionals were at the heart of the blend. It was important to us as the lecturing team, that the new medium-impact should be scalable and flexible when it was required to add, remove and/or change any of the face-to-face and/or online activities. It was also essential that the blend should be accessible to the students at any time and place and that the blend could be managed within the given constraints.

The design of the medium-impact blend took place over a period of eight months and the blend was implemented in July 2019. Maintaining the Flipped-Classroom approach, the NWU's Learning Management System (LMS) was used as eLearning environment. During the redesign process, existing content was evaluated. Where applicable, content was replaced with more responsive and fit for purpose content. Content was re-grouped and structured according to seminars. Learning material which included guided reading material, content videos and additional supporting multi-media resources were uploaded onto the LMS. To enhance learning, pre-class preparatory learning activities were designed. Students were requested to work through the pre-session content and do the pre-session learning activities. This included completing the pre-session individual activity and doing an online assessment based on the learning material. Face-to-face time was used for TBL, where the lecturer facilitate small-group learning. In-class activities included the Readiness Assurance Process (RAT), the Appeal and Clarification session and Focused Application Task (FAT). Table 2.1 provides an outline of the previous Low-impact blend and the newly designed Medium-impact blend. Table 2.1 is followed by a detailed discussion on using Team-based learning within the medium-impact blend.

Table 2.1 Previous and current blend in WVGW 221

Component	Low-impact blend	Medium-impact blend
Flipped-Classroom	Use a Flipped-Classroom approach	Use a Flipped learning approach
Online individual learning space / environment		
eLearning site	Use available LMS: eFundi	Use available LMS: eFundi
Structure	Content structured according to learning units Navigation instructions available in writing	Rethinking content. Content re-grouped and restructured according to seminars Navigation instructions available in writing as well as in screen recorded video with vignette
Learning material	Reading material	Guided reading material
	Voice-over technology used to capture the lecturer's explanation of the PowerPoint content	Video software used to create animated content videos

	Limited multi-media resources	Ample supporting multi-media resources
	Included no open education resources	Open education resources
Pre-class learning activities based on the learning material	No pre-class learning activity set on the learning material	Pre-class learning activity based on the learning material
Online assessment	No pre-class assessment set on the learning material	Pre-class assessment set on the learning material
Online assessment tool	No pre-session assessment tools used	Test & Quiz functionality on LMS used
Online communication	Limited online communication opportunities	Asynchronous online communication and collaboration opportunities are available
Online communication tool	- Announcement functionality on LMS to communicate organisational matters. - No online communication tool used for discussion of content	- Announcement functionality on LMS to communicate organisational matters - Forum functionality on LMS used to discuss content related matters - WhatsApp used to communicate organisational matters and ask questions - Messaging tool and the social media platform WhatsApp were used for individualised communication
Feedback	No online feedback	Students receive immediate feedback at the end of the online assessment and where applicable, on the forum
Face-to-face group learning space / environment		
Component	Low-impact blend	Medium-impact blend
Teaching strategy	Face-to-face time were used for theoretical lectures where the lecturers explained the PowerPoint that was uploaded onto the LMS	Face-to-face time is used for Team-based Learning (TBL) where the lecturer facilitate small group learning
In-class activities	In-class activities included: - a traditional lecture using PowerPoint. Lecturer explains pre-session content, - large classroom discussion (350+ students) - traditional question and answering in case of uncertainty	In-class activities build onto the pre-class preparation and individual learning activities. It includes hands-on application of content while working in small interprofessional learning teams (5 members) during the Readiness Assurance Process (Phase 1),

		• Appeal and Clarification session (Phase 2), and the • Focused Application Task (Phase 3)
Feedback	Students receive direct and immediate feedback when asking a question	Students receive direct and immediate feedback during the • Readiness Assurance Process (Phase 1), • Appeal and Clarification session (Phase 2), and the • Focused Application Task (Phase 3)

TBL builds on a blended and flipped learning approach (§2.3.2.1.4) as TBL's primary objective is to optimally utilize face-to-face time for the application of content to solve authentic, real-life problems. The decision to adopt TBL as method of instruction in the module WVGW 221 was driven by numerous factors. These factors include, but is not limited to the teaching and learning challenges I experienced related to large class teaching; the responsibility as an health educator to provide a meaningful contribution in preparing students to become health care professionals with the ability to function effectively as members of an interprofessional team; the lecturing team's commitment towards developing a deep approach to learning amongst students, and the optimal utilisation of the educational power of blended learning and TBL.

In the ensuing discussion I provide an overview of the theory behind TBL as well as a practical description of how TBL was applied in the module WVGW 221.

2.4 Team-based learning

Barr and Low (2013, p. 19) advocate the view that teaching and learning methods most appropriate for interprofessional education are methods that stimulates active learning, interactivity, reflexivity and collaboration. Giving its active and collaborative nature, TBL is viewed as an effective method in health professions education (Black et al., 2016, p. 20; Wallace & Walker, 2018, p. 67).

Over the last forty years, TBL has developed into a credible and powerful method of instruction to develop a deep approach to learning with the body of literature more than tripling from 2011 (Reimschisel et al., 2017, p. 1227). In 1979, Larry Michaelsen was faced with increased class sizes due to budget constraints. To solve some of the challenges associated with large class teaching such as limited student-to-student and student-to-lecturer engagement, limited accountability and under preparedness for class, Michaelsen embarked on designing a learning experience that pivots around decision-making and problem solving. Students soon realised that

they had to prepare in order to analyse and discuss the scenario, make an informed decision, explain and/or defend their answer to the end, and solve the given problem. At the heart of TBL is the fundamental shift from what students need to know to what students need to do. TBL was originally developed within the business school, however, today, TBL is widely used with great success in various disciplines and especially in Health Professions Education (Reimschisel et al., 2017, p. 1227; Sibley & Ostafichuk, 2014, pp. 8-9; Wallace & Walker, 2018, p. 67).

Sweet (2010, p. 1) describes TBL as “a special form of small group learning using a specific sequence on individual work, group work, and immediate feedback to create a motivational framework in which students increasingly hold each other accountable for coming to class prepared and contributing to discussions”. Parmelee et al. (2012, p. 275) defines TBL as “an active learning and small group instructional strategy that provides students with opportunities to apply conceptual knowledge through a sequence of activities that includes individual work, teamwork and immediate feedback”. Hawkings (2014a, p. 1) describes TBL as “a well-defined active learning strategy that combines pre-class guided self-learning with highly interactive small group learning in class”. Drawing from the above-mentioned definitions, TBL in this study refers to *a small group, active and student- and learning-centred learning strategy with a specific arrangement of learning activities consisting of pre-class individual work and in-class team work where students get the opportunity to apply conceptual knowledge, and receive immediate feedback to guide their learning.*

The instructional power of TBL lies in the specific and sequential combination of the three phases in the learning design as it allows for multiple engagement with the content (Sibley & Ostafichuk, 2014, p. 9). In phase one, students are required to, on an individual basis, prepare beforehand. In phase two and three, face-to-face contact time is dedicated to applying content through the individual and team Readiness Assurance Process (phase two) and the decision-based Focused Application Activity (phase three). Combining the three phases results in a powerful educational experience (Sibley & Ostafichuk, 2014, p. 14). Figure 2.4 provides a visual outline of the phases of TBL. Each one of these phases will be discussed in more detail (§2.6 - 2.8).

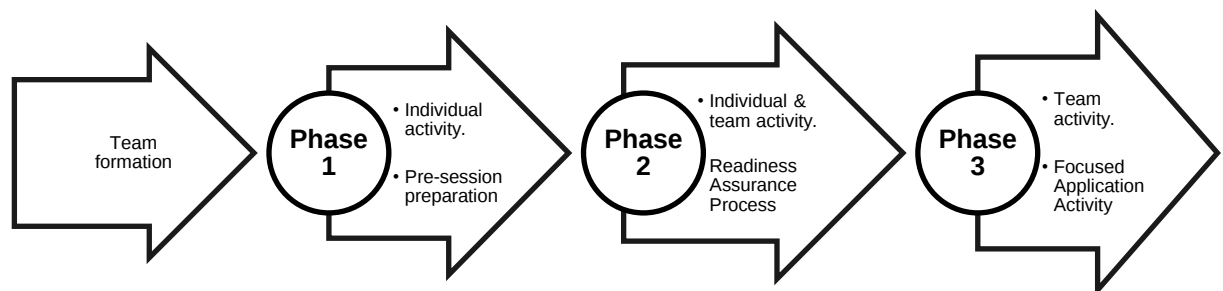


Figure 2.4 Phases of Team-based Learning (adapted from Sibley & Ostafichuk, 2014, p. 14)

2.4.1 Application of TBL in WVGW 221

WVGW 221 is a second semester module and face-to-face contact time runs over a period of twelve weeks from July to October (excluding the assessment week, recess period and end of the year examination). On the institutional timetable the module is assigned a ninety-minute contact session once a week. This implies a total of eighteen hours face-to face time. Michaelsen and Sweet (2008a, p. 37) suggest that venues with portable tables and chairs where students can have round-table discussions and face-to-face interaction are the most suitable for TBL sessions. Due to the large number of students enrolled for the module, theatre style fixed-seating lecture halls, are assigned to the module. Due to timetable combinations, the request for more and smaller classes, more suitable venues and longer contact sessions were not possible.

In this study, week one's face-to-face time was used for introducing TBL. The last week (week prior to the end of the examination) was used for wrap up and reflecting on the teaching and learning approach used in this module. The remaining ten weeks were structured around five TBL cycles, with each cycle running over a period of two weeks.

Sibley and Ostafichuk (2014, pp. 8, 89) point out that contextual factors may require one to adapt the TBL framework and use only selected phases of the TBL framework. However, the authors warn that a significant portion of the instructional power could be lost as a result. Although realizing that our context is unique and that the TBL framework of Michaelsen needs to be adapted to accommodate our unique context, the advantages of using a TBL approach still outweighed the risks of losing some of the instructional power of TBL. Guided by the work of established scholars in the field such as Black et al. (2016), Hawkings (2014a), Lochner et al. (2018), Michaelsen and Sweet (2008a), and Parmelee et al. (2012), the redesign of the module began.

2.4.2 Essential principles and components in TBL

Embedded in the different phases of TBL, the literature identifies four essential principles that are critical to ensure the successful implementation of TBL. They include firstly, the proper formation and management of groups; secondly, holding students accountable for the quality of their individual and group work; thirdly, providing frequent and timely feedback, and lastly, designing group assignments to promote both learning and team development (Eksteen, 2017, p. 154; Michaelsen & Sweet, 2008a, p. 8; Sibley & Ostafichuk, 2014, p. 9).

Drawing on the work of Michaelsen and Sweet (2008b, pp. 10-12), Sibley and Ostafichuk (2014, pp. 8-11) and Eksteen (2017, p. 154), Figure 2.5 provides a visual presentation of the four essential principles with the nine components resorting under the four principles. As each of

these principles come into play during the discussion of the phases, I will discuss each of the principles as well as showcase how this principle was applied in this study.

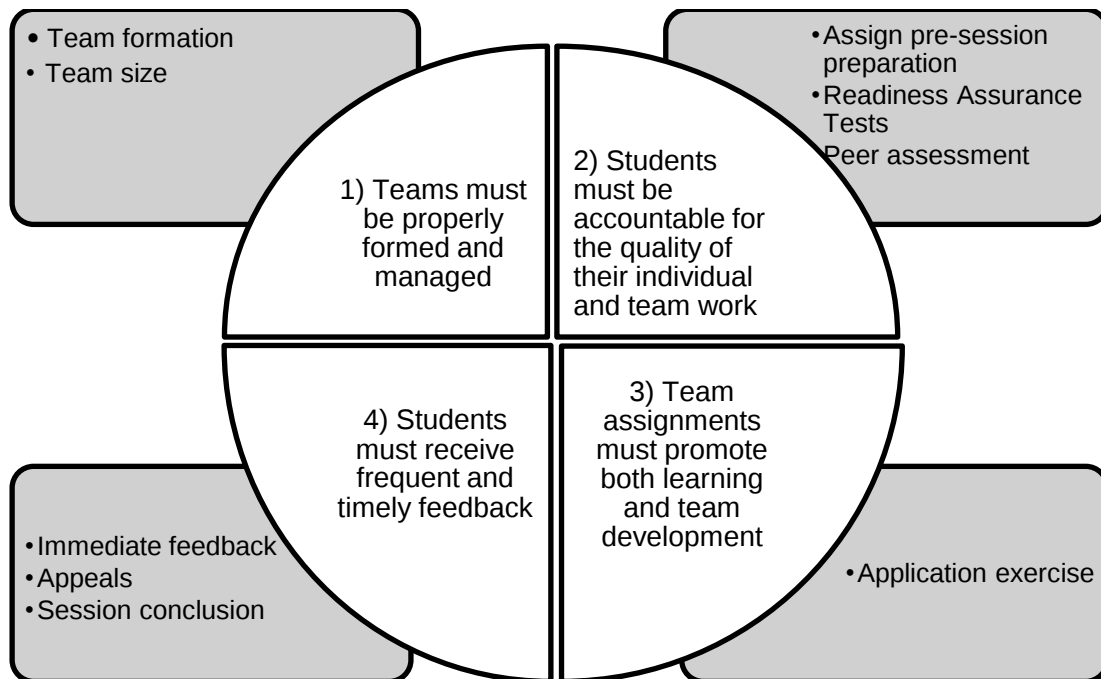
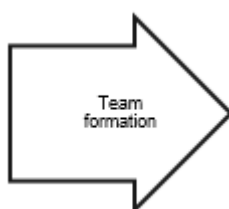


Figure 2.5 Four essential principles and nine components of TBL (Compiled by author)

2.5 Team formation and managing teams



As the majority of face-to-face time is used for team work in TBL, proper team formation and management are one of the four essential principles of TBL (Michaelsen & Sweet, 2008b, pp. 10-12; Sibley & Ostafichuk, 2014, pp. 8-11). To ensure the best educational result, teams should be lecturer-created using specific sorting criterion.

Figure 2.6 Team formation and managing teams

Although students may request and/or prefer to self-select their teams, literature is clear that self-selected teams consistently underperform as the underpinning dynamics in existing relationships complicates team cohesion (Sibley & Ostafichuk, 2014). Teams should be diverse and consist of between five and seven students.

Teamwork in TBL harnesses the power of individual accountability within a social learning environment (Sibley & Ostafichuk, 2014, p. 9). According to Michaelsen and Sweet (2008b, pp. 10-12), accountability is essential for the successful implementation of TBL (§2.4.2). As team dynamics takes time to develop it is therefore imperative that students stay within their

strategically assigned teams for the duration of the module (Michaelsen & Sweet, 2008a, p. 10; Sibley & Ostafichuk, 2014, p. 10).

To familiarise students with TBL, literature recommends that students should be allowed to practice with TBL and suggest that the students' first exposure to the pre-class preparation, the RAT and the FAT should happen in a stress-free environment and not contribute to their course mark.

2.5.1 Compiling teams in WVGW 221

Careful planning went into setting and prioritizing the sorting criterion for team formation, the actual formation of teams and the management of teams. As suggested in the literature, the lecturers performed the team formation. Literature also suggests that team formation should happen in the presence of the students (Michaelsen & Sweet, 2014, pp. 9, 66). Although the lecturers performed the team formation in this module, team formation did not happen in the presence of the students due to the large number of students registered for this second semester module. Using the email addresses available on the administrative system of the university, I requested students via email to complete an online pre-module questionnaire. Mindful of the context of this study and using the available student information on the administrative system of the university as well as the data from the student questionnaire, I opted for five-member teams. Having teams of five would allow for sufficient diversity, collaboration, communication, intellectual contribution, and accountability towards team success. Given the limited experience in using TBL as method of instruction, I also considered groups of five to be more manageable.

Collaboration and diversity are at the core of this module and therefore they featured strongly in the formation criterion. To simulate collaboration and the management of member diversity, I valued the importance of exposing students to diversity and peers from other health and social care disciplines. Therefore, the criterion used for team formation were disciplinary focus, ethnicity, gender and language. Each team comprised of five members representative from different health and social care disciplines¹⁰, gender¹¹, ethnic groups¹² and language¹³. Although trying our utmost to keep representation as equal as possible, it wasn't always possible e.g. only a small number of Coloured, Asian and Indian male and female students are enrolled for this module. As it was not possible to assign a Coloured, Asian and Indian male and female student

¹⁰ Pharmacy, Nutrition, Dietetics, Social Work, Psychology, Physiology, Consumer Sciences, Occupational, Hygiene, Human Movement Science, Biokinetics, Recreation, Sports Science and Coaching Science.

¹¹ Male, Female and Other.

¹² Asian, Black African, Coloured, Indian, White and Other.

¹³ Afrikaans and English.

to each group, I tried to promote cultural diversity by assigning at least one student from these smaller ethnic groups to each team.

Within the context of this study where the NWU values multilingualism, language was also used as a criterion. At the time this study was conducted, the primary languages of instruction at the NWU were Afrikaans and English. In line with the commitment of the NWU towards enhancing multilingualism, groups had Afrikaans- and English speaking students. To address our initial concern that language may be a barrier during in-class activities, I explained the rationale behind language diverse groups during the orientation session, and that students will be expected to communicate with patients in another language once they entered the workplace. We advocated that the small group environment could be the ideal place to develop and practice communication skills. As part of the orientation session I requested groups to discuss how they were going to address the language diversity within their group. To our amazement all the groups agreed on communicating in a language everyone understood and where a member felt that he/she could better express themselves in their mother tongue, they could do so, and another member would translate opinions into the language as agreed upon.

2.5.2 Getting students on board

At the NWU where this study was conducted, some students may be familiar with a flipped approach, in-class activities and group work as some lecturers make use of these teaching methods to enhance student participation. However, although TBL has been used since 1979, it is a fairly new method of instruction at the NWU and as a result, students might not be familiar with TBL and what it entails. In cases where students are enrolled for modules where the lecturer follows a strong didactic approach and students are passive during the learning process, requesting students to prepare beforehand and be actively engaged during the face-to-face contact session may generate some resistance. Students may also feel that it is the lecturer's responsibility to teach them, that they pay for the "expert's knowledge" and/or that they cannot challenge the lecturer's authority as the lecturer is the content expert. To manage students' expectations and perceptions, getting students' buy-in and preparing students to enter into a more collaborative and equal learning environment are essential for the successful implementation of TBL (Sibley & Ostafichuk, 2014, p. 6).

As suggested in literature, I used the first contact session to orientate our students in the use of TBL in this module. During this discussion I explained the how, what, where, when and why behind the use of TBL and gave students time to raise any questions and/or concerns should there be any. I also discussed the changing role and responsibilities of both the student and the

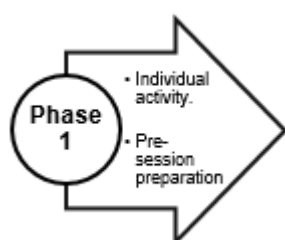
lecturer (Michaelsen & Sweet, 2008b, p. 19). Supplementary, a student guide explaining the how, what, where, when and why of TBL was also uploaded on the module site on the LMS.

Knowing that assessment drives learning, I took sufficient time to compile the assessment plan. Although suggested in literature that students should during the first TBL session have an input into the compilation of the participation mark, this was not feasible due to the large number of students. The assessment plan was designed around what I valued e.g. the iRAT had a lower contribution to the participation mark was lower than the tRAT, as I did not want the students to cheat during the individual test, however, the tRAT's percentages were higher because I valued collaboration, discussion, critical reasoning and decision-making. The lecturers were also transparent when discussing the assessment plan with the students during the orientation session and not only explained the percentage of each TBL component, but also the rationale behind the allocated percentage. The percentage allocated to the individual mark and the team mark were discussed in detail, showcasing how individual and team accountability could result in good marks and how the calculation of the individual and team percentage related to institutional guidelines when calculating the participation mark. A detailed assessment plan was uploaded onto the LMS and students.

As recommended in literature, I was very transparent when explaining the rationale behind lecturer-created teams versus self-selected teams, the sorting criterion and order used for creating the teams as well as the team formation process (§2.5). We explained the rationale behind the team formation and why no team switching requests could will be considered. To initiate team cohesion, I included a team-building activity as part of the orientation session. During the team-building activity team members got the opportunity to get to know one another as well as compile a social agreement for their team.

To manage the venue and seating constraints, team numbers were placed throughout the venue. Team members were requested to sit at their assigned team seat numbers and in two consecutive rows. Two members were requested to sit in the front row and three members were requested to sit in the back row. During team discussions the two members in front row were requested to turn and sit on their desks in order to participate in the team discussion.

2.6 Phase 1: Pre-session preparation



Prior to the application of content in the face-to-face session, students are required to prepare beforehand by engaging with the assigned preparatory material and activities. The preparatory material can include, but is not limited to, readings, PowerPoint slides, podcasts and/or videos (Michaelsen & Sweet, 2008a, p. 13).

Figure 2.7 Phase 1: Individual pre-class preparation

The amount of preparatory work is influenced by numerous factors such as the duration of the module, the nature of the discipline, the difficulty level of the content, the year level of the students e.g. first year vs post graduate level, the students' level of experience with TBL and the institutional teaching and learning culture (Sibley & Ostafichuk, 2014, p. 76). I concur with the authors but want to add that when selecting and designing preparatory work, lecturers should try to accommodate students' learning preferences as well as the needs of students with physical, learning, visual and hearing impairments.

Sibley and Ostafichuk (2014, p. 76) as well as Talbert (2017, pp. 20-23) argue that students might experience difficulty when engaging with the compulsory preparatory work. Therefore, the selection and quality of pre-class preparatory material, the design of pre-class preparatory activities and support to students when engaging with the pre-class preparatory material and activities are extremely important. Selecting appropriate and relevant materials and allowing sufficient time to engage with the materials are also important. Research indicates if preparatory work that are short, focused and aligned with the instructional objectives of the learning unit/section, students seems to be more motivated to engage with the material and more likely to have a better retention and understanding (Michaelsen & Sweet, 2008a, pp. 14-15; Sibley & Ostafichuk, 2014, p. 76).

It is also essential to direct the student's attention on how to engage with the material. This can be done using generic and specific reading guides. Generic reading guides introduce students to different strategies and techniques they can use to enhance their critical reading skills. Specific reading guides are much more detailed as it directs the student's attention to the concepts he/she needs to master and apply during the in-class activities. Examples of specific reading guides can include a set of questions that the student needs to answer after engaging with the material, instructional notes indicating what the student should be attentive to when engaging with the material and highlighting text in a document (Sibley & Ostafichuk, 2014, p. 100). Within a blended environment students may need additional guidance and support as students could be unfamiliar with accessing preparatory material and/or learning online (Talbert, 2017, p. 189).

When adopting a TBL approach, the reimagining and structuring of the module content as well as the design of high-quality learning activities where the students can show mastery of the content by doing something (applying the content) could be challenging to lecturers (Sibley & Ostafichuk, 2014, p. 5).

2.6.1 Pre-class preparation in WVGW 221

As discussed previously (§2.3.4, 2.4.1), sufficient time was spent on analysing and rethinking the teaching and learning design. This included the preparatory material and activities. Preparatory material was short, focused and aligned with the instructional objectives of the seminar and fit for purpose. Preparatory material included guided reading material, content videos and additional supporting multi-media resources and were uploaded onto the LMS. As suggested by Sibley and Ostafichuk (2014, p. 100) the lecturing team highlighted essential text and/or included questions and/or instructional notes to direct the students' attention. In preparing for the in-class RAT and FAT, students were requested to work through the pre-session material and do the pre-session learning activities. Preparatory learning activities varied depending the outcome(s) students would need to master in the face-to-face session and included an individual activity and online revision-assessment based on the preparatory material. For additional support the lecturers created and monitored an online forum on the LMS for the duration of the learning section (normally two weeks). Students could post any content related questions on the forum whereafter the lecturer would respond within 24 hours.

2.7 Phase 2: Readiness Assurance Process (RAP)



One of the corner stones of TBL is the Readiness Assurance Process (RAP) as it allows students to validate their understanding of the content, fosters individual and team accountability and promotes team development.

Figure 2.8 Phase 2: Readiness Assurance Process (RAP)

The RAP consists of the individual Readiness Assurance Test (iRAT), the team Readiness Assurance Test (tRAT), the appeal process and lastly, the clarification session (Parmelee et al., 2012, p. e276). In the following discussion to follow I provide a brief overview of each of the components in the RAT where after I will provide insight into how the RAP was conducted in the module WVGW 221.

2.7.1 The individual Readiness Assurance Test (iRAT)

The individual Readiness Assurance Test (iRAT) is usually conducted in the beginning of the face-to-face session. Aligned with the learning outcomes of the session, the iRAT is an individual, closed-book, multiple-choice test, theoretical of nature and based on the assigned preparatory material. The purpose of the iRAT is to strengthen what the student has learnt when engaging with the preparatory material. Depending on the time available, an iRAT can have anything between 10-20 multiple-choice questions (MCQs) focusing on the foundational concepts students need to master in order to complete the Focused Application Task (FAT) (Michaelsen & Sweet, 2008b, pp. 22-23; Parmelee et al., 2012, p. e276). Individuals need to complete the iRAT within the allocated time frame and once the time expires, they have to hand in the multiple-choice card.

2.7.2 The team Readiness Assurance Test (tRAT)

After the iRAT the students write the exact same multiple-choice test but this time as a team. The team Readiness Assurance Test (tRAT) is an open-book this time, where students can deliberate their answers and source the content to, as a team, identify and select the most appropriate answer for each test question (Michaelsen & Sweet, 2008b, pp. 23-24). During the tRAT team members work face-to-face to complete the tRAT on a self-scoring answer sheet, also known as an Immediate Feedback Assessment Tool (IF-AT) or in laymen's terms, a cards scratch card. Each team receives one scratch card and as a team member scratches off the foil covering of the selected box, it provides immediate feedback indicating if the answer was correct or not. Receiving immediate feedback promotes individual and the team's accountability - one of the four essential principles identified by Michaelsen & Sweet (2008a, p. 8) to ensure the successful implementation of TBL. Receiving immediate feedback also validates each individual's and the team's understanding of the concepts and/or clear misconceptions (Michaelsen & Sweet, 2008a, p. 17).

In that all members in the team receives the team score, the tRAT increases accountability, interaction and cohesiveness, as it is important for team members that the team performs well. Mark allocation works as follows: should students find the correct answer on the first attempt, students get full marks (four marks). If they did not get the correct answer on the first attempt and on the second scratch identify the correct answer, they receive half the marks (two marks). On scratching a third time to identify the correct answer, the team gets one mark. However, if they get the answer on the final scratch, the team gets zero marks (Michaelsen & Sweet, 2008b, pp. 23-24; Parmelee et al., 2012, p. e276).

Literature suggests that questions should be set in such a manner that stimulates team discussion and that sufficient time should be allocated to discuss each question and alternative answer should students feel that there are multiple correct answers. Teams need to complete the tRAT within the allocated time frame and hand in the scratch card when the tRAT time expires (Michaelsen & Sweet, 2008b, pp. 23-24; Parmelee et al., 2012, p. e276).

2.7.3 The appeal process

During the appeal process, teams have the opportunity to draft an evidence-based appeal should they feel that the question was ambiguous, the preparatory material was inadequate and/or that their “incorrect” response during the tRAT was in fact also correct. The appeal must be done in writing and teams must provide substantial evidence from the assigned preparatory material to present their case. Should an appeal be successful, only the team submitting the appeal will be credited, however, feedback is given to all students. The appeal process is an integral part of the RAP as students get the opportunity to be critical, build an argument and provide evidence to substantiate their reasoning (Michaelsen & Sweet, 2008b, p. 24; Parmelee et al., 2012, p. e277).

2.7.4 The clarification session

The clarification session usually takes the form of a short and specific mini-lecture by the lecturer, as the content expert. The purpose of the clarification session is to, in preparation for the team application activity, the FAT, clarify any concepts that the students grappled with during the iRAT, tRAT and appeals processes (Michaelsen & Sweet, 2008b, p. 25).

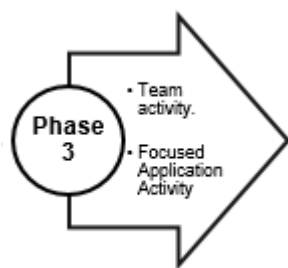
2.7.5 Readiness Assurance Process (RAP) in WVGW 221

The iRAT and tRAT was conducted as suggested in literature (§2.7.1, 2.7.2). Due to the limited face-to-face contact time, I had to shorten the RAP tests. Entering the face-to-face session, students had ten minutes to complete a five question closed-book iRAT on an institutional multiple-choice card. The iRAT was based on the assigned preparatory material and covered the foundational concepts students needed to master in order to successfully complete the Focused Application Task (FAT). At the end of the session, all multiple-choice cards were collected. Students then progressed to their learning teams and had approximately twenty minutes to complete the tRAT on a self-scoring scratch card. The tRAT was open book and students could use the preparatory materials as reference should they want to. After deliberation, teams selected and scratched the most appropriate answer for each test question and received immediate feedback.

Due to large student numbers, limited face-to-face lecturing time and only two lecturers to facilitate the 208 teams, the appeal process was moved to the online environment. Using a standardised template, teams had 48 hours to draft and submit an evidence-based appeal on the LMS. The lecturers would then contemplate the appeals and if successful, credit the respective team(s). The lecturers then compiled feedback on the appeals received and the feedback was uploaded onto the LMS for all students to access.

Due to contextual factors, I also dealt differently with the clarification session. Prior to moving on to the FAT, teams were asked to indicate where they need clarification and only these key concepts were clarified.

2.8 Phase 3: Focused Application Task (FAT)



After teams had completed the RAP, teams move on to the in-class team application activity. Michaelsen and Sweet (2008b, pp. 10-12) argue that team application activities that promote both learning and team development is essential for the successful implementation of TBL (§2.4.2, Figure 2.5).

Figure 2.9 Phase 3: Focused Application Task (FAT)

The FAT is structured around a real life problem scenario that students may face when working as a health professional. Teams are required to draw from existing knowledge, skills, attributes and experience to analyse and synthesize information, make a choice from the option provided and if requested, explain their choice to the other teams. Team application tasks are structured around the 4-S principle namely significant problem, same problem, specific choice and simultaneous report. Literature recommends that the application task should not be a mere repetition of theory (Michaelsen & Sweet, 2008a, p. 20; Sibley & Ostafichuk, 2014, pp. 12-13).

The problems selected for the application activities should be significant in the sense that it is based on real-life, realistic, and authentic problems that students may encounter when working as a health professional. The problem should be designed in such a manner that it stimulates in-depth discussion and an analysis and synthesis of the problem and possible alternatives to address the problem. Prior to commencing with the FAT, the lecturer should provide guidance on how to complete the FAT successfully and thereafter address any uncertainties and/or questions. Teams then work on the same problem at the same time and literature is clear that sufficient time should be granted for analysing the problem and discussing the alternatives (Michaelsen & Sweet, 2008a, p. 20). During the inter-team discussion, the lecturer moves between the groups and address any uncertainties teams might have. After the in-depth

discussion of the problem and given alternatives, teams need to select the most appropriate alternative. On the lecturer's call to display their choice, teams should display their specific choice so that it is visible to all teams (Michaelson & Sweet, 2008a, p. 20; Sibley & Ostafichuk, 2014, pp. 12-13). After teams had displayed their answer, the lecturer facilitates the in-class discussion by asking teams to explain their decision and clarify their thinking. As the content expert, the lecturer guides teams to the most correct alternative.

2.8.1 Focused Application Task (FAT) in WVGW 221

The FAT was conducted as suggested in literature (§2.8). After teams had completed the RAP, they proceed to complete the in-class team application activity. FATs were aligned with the learning outcomes of the specific study section, based on the assigned preparatory material and structured around a real life problem scenario that they could face as health professionals. Due to the nature of the module, the large number of teams and limited face-to-face contact time, I could not include all 4 S's. FATs were designed in such a way that teams received the same significant problem, however, contradictory to TBL literature, alternative solutions that teams had to pick from, were not provided. Teams had to analyse the problem and then collaboratively, drawing from each members' existing disciplinary knowledge, experience, skill and attributes, design a solution that would address the problem. Depending on the nature of the FAT, teams had time, ranging between thirty to forty minutes, to complete the application activity. Prior to commencing with the FAT, the lecturer provided advice on how to complete the FAT and addressed any uncertainties and/or questions. During the small-team discussion, the lecturer moved between the teams to address possible challenges the teams might experience. Using a random draw, selected teams were requested to show how they would address the problem and the lecturer would facilitate the discussion that followed. Teams had to hand in their FAT activity sheet and the FAT was assessed using the rubric teams received prior to the start of the FAT. Aligned with the module aims, the purpose of the FAT was to foster interprofessional collaboration, critical thinking and reasoning and problem-solving. Therefore these components were included in each rubric.

2.9 Peer evaluation

Using an evaluation criteria, team members are expected to evaluate each other twice on their contributions to the team's success and provide constructive feedback to one another. Although the peer evaluation is anonymous, literature recommends that peer evaluation should be conducted half-way through a course as well as at the end of a course and that constructive feedback after each evaluation should be done in person (Sibley & Ostafichuk, 2014, pp. 144, 148). As peer evaluation may be a new experience to many students, it is advisable to be

transparent when explaining the what, why, and how of peer evaluation, guide students on how to conduct an objective peer evaluation and how to provide objective feedback (Sibley & Ostafichuk, 2014, pp. 154-155).

2.9.1 Peer evaluation in WVGW 221

The literature is clear about the inclusion of peer review as an essential element of TBL. However, the lack of knowledge and experience on how to conduct an anonymous peer review of this magnitude and how to manage the process of giving constructive face-to-face individualised feedback contributed to the decision to not conducting a peer evaluation in the module in 2019. We took the conscious decision to first and foremost find our feet by implementing the basics of TBL namely putting the preparatory material online as well as designing and facilitating the in-class RATs and FATs. I realised that I was taking a risk to not include the peer reviews with the individualised feedback and that I could lose some of TBL's instructional power as alluded to by Michaelsen and Sweet (2008a, p. 19). However, I am of the opinion that implementing a poorly designed peer review process just for the sake of implementing it, might do more harm. For this reason, I made the conscious decision to first explore the work and seek the advice of experts in the field before designing and implementing peer evaluation in the module in 2020.

2.10 The benefits of TBL

The benefits of adopting a TBL approach are widely discussed in the literature. Using TBL makes learning more relevant and fun as students get the opportunity to apply the learning material to discuss and find solutions to real life problems (Hawkings, 2014b, p. 3). Not only do students attend class, they come to class prepared and because they are prepared they can actively engage in the discussions and decision-making (Michaelsen & Sweet, 2014, p. 30). This creates enthusiasm and energy in the classroom (Hawkings, 2014b, p. 3). Getting the opportunity to analyse and synthesize information and through the process of critical reasoning evaluate alternatives to select the most appropriate alternative to solve real-world problems, stimulates higher order thinking skills (Hawkings, 2014b, p. 3). Through the process of discussion and clarification, students are exposed to diverse perspectives which in return contributes to an in-depth understanding of the work and not just rote learning (Michaelsen & Sweet, 2014, p. 29).

Working in teams also contributes to the development of work-related skills such as collaboration, communication, conflict management, decision-making, problem-solving and team-work skills. Students get the opportunity to experience the value of teamwork when it comes to brainstorming to identify the most appropriate solution to solve a problem. As teams grow and learn together, teams become more cohesive. Trust, mutual respect and respect for diversity increases.

Students also get the opportunity to identify their own strengths and weaknesses when it comes to teamwork (Kubitz, 2014, pp. 58-59; Michaelsen & Sweet, 2014, p. 30).

TBL is student-centred, learning-centred and student driven. Self-directed learners get the opportunity to take ownership of their own learning by managing their time and learning when engaging with the preparatory material. Through the process of peer-teaching and –learning, students become partners in the learning process (Michaelsen & Sweet, 2014, p. 30). TBL further enhances student-to-lecturer engagement as the lecturer gets the opportunity to rotate between groups during the RAT and FAT. Even in large classes, the lecturer gets the opportunity to engage with students by moving between the teams. By moving and engaging with the teams, the lecturer gets the opportunity to observe, listen, guide student learning in the right direction and provide immediate feedback where applicable (Michaelsen & Sweet, 2014, p. 30).

2.11 Conclusion

In this chapter I discussed how the increased access to higher education and the shift towards “health care as a team sport” are challenging the way health educators prepare students as health professionals. From the literature review it is evident that adopting a blended and Team-based Learning approach can address some of the teaching and learning challenges health educators are grappling with when it comes to enhancing student engagement and interprofessional collaborative learning in a large class setting. I provided insight into the pedagogical innovation in the module WVGW221 by discussing the why, where, when and how (and sometimes the why not) I went about to embrace the principles of interprofessional education and collaborative learning, blended learning and Team-based learning to address the teaching and learning related challenges I am facing when it comes to student engagement and interprofessional collaborative learning in a compulsory module and large class setting.



CHAPTER 3

MANUSCRIPT

TEAM-BASED LEARNING TO ENHANCE STUDENT ENGAGEMENT AND INTERPROFESSIONAL COLLABORATIVE LEARNING IN A LARGE CLASSROOM

Journal	South African Journal of Higher Education
Title of the manuscript	TEAM-BASED LEARNING TO ENHANCE STUDENT ENGAGEMENT AND INTERPROFESSIONAL COLLABORATIVE LEARNING IN A LARGE CLASSROOM
Author guidelines	This manuscript will be submitted to the South African Journal of Higher Education (SAJHE) and is presented in accordance with the specific guidelines for the journal, as well as the instructions for authors. Access the author guidelines here or in Appendix F. Exceptions were made for selected technical elements e.g. margins, line-spacing, spacing, headings, font and referencing style to adhere to the North-West University guidelines to maintain uniformity of the dissertation.

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3.1 ABSTRACT

The continuous changing health care and higher education landscape create unprecedented challenges in preparing health professionals. One such a challenge is fostering student engagement and interprofessional collaborative learning in a large class environment. The purpose of this article is to share how Team-based Learning (TBL) was used to enhance student engagement and interprofessional collaborative learning in a compulsory, health science philosophy-based module with a 1000+ students. Ethics approval was granted. Using all-inclusive voluntary sampling (n=346), this mixed method study was conducted with second-year students (N=1335) representative of fourteen health/social care professions. Qualitative data-collection included focus group interviews using a semi-structured interview schedule and post-module reflection. Quantitative data collected via the Learning Management System was used in an exploratory supportive manner. Findings revealed that working collaboratively in interprofessional teams, in-class learning activities such as the team readiness assurance test (tRAT), the clarification sessions and focused application task (FAT) enhanced behavioural, cognitive and emotional engagement. Moreover, exposure to diverse individual and disciplinary perspectives and approaches challenged hegemonic thinking. Participants experienced improved interprofessional collaboration with evidence of collaborative learning, mutual respect, trust, communication skills, problem-solving and better understanding of disciplinary roles and thinking. This article contributes to the knowledge field of large class teaching and limited research on the use of TBL in the South African higher education setting.

Keywords: student engagement, interprofessional peer-learning, Team-based Learning, large class, higher education, health professions education

3.2 INTRODUCTION

Numerous forces are continuously shaping and challenging the higher education and health care landscape (Academy of Science in South Africa, 2018, pp. 23-24; Council on Higher Education, 2016, pp. 5, 9). Pressures surrounding increased access, a larger and more diverse student body, changing funding patterns, budgetary constraints and limited teaching resources are creating unprecedented teaching- and learning-related challenges, forcing health educators to find innovative ways to keep up with the challenging and changing demands (Academy of Science in South Africa, 2018, pp. 17, 45; Council on Higher Education, 2016, pp. 5, 7, 9; Kayingo & McCoy Hass, 2018, p. xxvii).

Within health professions education, the rapid evolving health care landscape, the shift towards “health care as a team sport” accompanied by the call for an interprofessional and collaborative perspective on health professions education using blended and team-based approaches, requires of health educators to critically reflect on the way they prepare students as health professionals (Kayingo & McCoy Hass, 2018, p. xxvii).

Magaña (as cited in Cuff (2016, p. 8)) argues that health professions education should focus on active learning, student engagement and interprofessional learning. However, a review of health science interprofessional education literature revealed a gap in publications on the use of innovative and transformative education strategies with the specific purpose to enhance student engagement and collaborative learning, especially in large class undergraduate teaching. In 1979, Larry Michaelsen, a lecturer in Economics, was faced with increased class sizes. To solve some of the challenges associated with large class teaching, Michaelsen embarked on designing a learning experience that pivots around decision-making and problem solving. Over the past forty years TBL has developed into a credible and powerful method of instruction and today it is widely used with great success in various disciplines, including Health Professions Education (Parmelee et al., 2012, p. 276; Reimschisel et al., 2017, p. 1227; Sibley & Ostafichuk, 2014, pp. 8-9; Wallace & Walker, 2018, p. 67).

TBL can be described as a small team, active and student- and learning-centred method of instruction with a specific sequence of activities consisting out of pre-class individual work and in-class team work where students get the opportunity to apply conceptual knowledge, and receive immediate feedback from the content expert to guide their learning (Hawkings, 2014a, p. 1; Parmelee et al., 2012, p. 275; Sweet, 2010, p. 1). The fundamental shift from what students need to know to what students need to do, is integral to TBL.

Student engagement is at the heart of TBL. During the learning process, students are actively engaged with the content, the lecturer and their peers as they get the opportunity to work and learn with- and from one another (Reimschisel et al., 2017, p. 1228). There is consensus in literature that engaged students are more self-regulated, enjoy being challenged, are more positive, enjoy learning, drive themselves to perform academically and their academic achievement also increases (Bender, 2017, p. 1). Investigating student engagement using TBL activities, we took cognisance of the multidimensional nature of student engagement and the interplay between the domains (Reschly & Christenson, 2012, p. v). Using the multidimensional clustering of Fredricks et al. (2004, pp. 60-61), we explored the participation of students in academic activities (behavioural engagement), their positive and/or negative interactions with

others and subjects within the learning environment (emotional engagement), and their personal investment and self-regulation in order to achieve mastery (cognitive engagement).

Strydom and Mentz (2010, p. 3) maintain that student engagement pivots around two key components namely “what students do (the time and energy they devote to educationally purposive activities), and what institutions do (the extent to which institutions employ effective educational practices to induce students to do the right things)”. As suggested by Solomonides et al. (2012, p. 12), we also explored the relational dimension by examining with what (or whom) students are engaging with e.g. content, pedagogic activities, peers, academic staff, their professional identity etc.?

In a health education context, one of the possible advantages of using TBL is the interprofessional learning that can result from the structured team collaboration. The World Health Organization (WHO) defines Interprofessional Education (IPE) as “students from two or more professions learn[ing] about, from, and with each other to enable effective collaboration and improve health outcomes” (World Health Organization, 2010, p. 13).

Numerous scholars publishing in the field of IPE, argue that learning within a large class environment cannot replace interactive learning in small teams dealing in differences on which IPE relies (Barr & Low, 2013, p. 8). Although acknowledging these views, we argue that not all students enrolled in health/social care disciplines at higher education institutions are exposed to interprofessional learning opportunities such as Work-integrated Learning (WIL) and/or Work-based IPE, where they get the opportunity to work collaboratively with health professionals to develop and/or enhance their interprofessional knowledge, skills and competencies. Against this backdrop we view the second-year, compulsory, philosophy module as the ideal environment to introduce students to IPE and to cultivate an understanding of the importance of interprofessional collaboration, respect and appreciation for other professions when entering the health care environment (World Health Organization, 2010, p. 10).

The implementation of TBL created an environment where such learning can take place. Barr and Low (2013, p13) explains that the teaching and learning methods most appropriate for interprofessional education are methods that stimulate active learning, interactivity, reflexivity and collaboration. Black et al. (2016, p. 21) confirms the effective use of TBL as educational approach in medical and health professions education, however, argue that more research is needed in the use of TBL within interprofessional learning settings. Given its active and collaborative nature, Team-based Learning (TBL) can be considered as an effective method to foster student engagement and interprofessional collaborative learning in health professions education (Black et al., 2016, p. 20; Wallace & Walker, 2018, p. 67).

In this article, we firstly explain how TBL was implemented in a large undergraduate class in a health science faculty, followed by the empirical evidence of student engagement and collaborative learning as a result of the TBL. The advantage of effective interprofessional learning is also captured. We conclude this article with recommendations for effective large class teaching using the TBL principles.

3.2.1 Implementing Team-based learning in a large class setting

The instructional power of TBL lies in the specific and sequential combination of the three phases in the learning design as it allows for multiple engagement with the content, peers and the lecturer(s) (Sibley & Ostafichuk, 2014, p. 8). Figure 1 provides a visual outline of the phases of Team-based Learning.

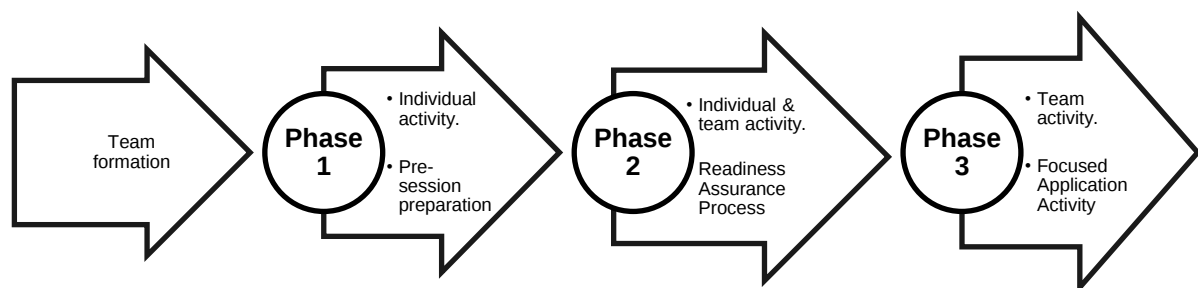


Figure 3.1 Phases of Team-based Learning (as adapted from Sibley & Ostafichuk, 2014)

3.2.1.1 Team formation

Michaelsen et al. (2008, p. 8) argue that the proper formation and management of teams are essential for the success of TBL, thus the lecturer assigned students to teams, and did not leave the choice of group formation to the students. Learning teams were strategically formed, and comprised of five members who were representative from different disciplines, gender and race.

3.2.1.2 Phase 1: Pre-session preparation

A systematic process of planning and design of the learning cycles were guided by situational factors, clarity about what our students should be able to *do and* the fundamental principles of TBL as suggested by Michaelsen and Sweet (2014, p. 9) and Parmelee et al. (2012, pp. 279-282). Using a flipped approach, the Learning Management System (LMS) served as online learning platform, and was populated with guided study material and learning resources. These included, (but was not limited to) voice-over PowerPoints, concept videos, self-assessment quizzes, and reflection activities. During phase one, the pre-session preparatory phase, students

were required to individually utilise the resources on the LMS to prepare for the face-to-face session. Guided by embedded instructional support, students could within the individual learning space engage with the content and learning activities in a place, time, and pace that was convenient to them and as many times as they deemed necessary to master the content (Govindaraj & Silverajah, 2017; Staker & Horn, 2012; Talbert, 2017, pp. 56-59).

3.2.1.3 Phase 2: Readiness Assurance Process (RAP)

Phase two, the Readiness Assurance Process, consisted of an individual test followed by a team test. Students worked within their assigned learning teams to engage with, and apply the content to solve real-life, realistic, and authentic problems. The individual Readiness Assurance Test (iRAT) was conducted in the beginning of the face-to-face session. Students completed the closed-book, multiple-choice test that focused on the foundational concepts students needed to master in order to complete the Focused Application Task (FAT) (Michaelsen et al., 2008, pp. 22-23; Parmelee et al., 2012, p. e276). No test results were made available at this stage. After completing the iRAT, students then progressed to their learning teams to complete the exact same multiple-choice test, this time as a team, using a self-scoring scratch card (also known as an Immediate Feedback Assessment Tool (IF-AT)). The team Readiness Assurance Test (tRAT) is open-book and team members can deliberate their answers and source the preparatory materials (Michaelsen et al., 2008, pp. 23-24) before selecting, as a team, the most appropriate answer for each test question on the scratch card. Receiving immediate feedback promotes individual and the team's accountability, one of the four essential principles identified by Michaelsen et al. (2008, p. 8) to ensure the successful implementation of TBL. Receiving immediate feedback also validates understanding of the concepts and/or clear misconceptions by individuals and the team (Michaelsen & Sweet, 2008a, p. 17).

The tRAT is followed by an appeal process, where teams could appeal if they felt that a question was ambiguous, the preparatory material was inadequate and/or that their "incorrect" response during the tRAT, was in fact, correct. Michaelsen and Sweet (2008a, p. 17) suggests a face-to-face appeal process, however, due to contextual factors, the appeal process was moved to the online environment. Learning teams had 48 hours to submit an evidence-based appeal using the LMS. Feedback on the appeal(s) was uploaded onto the LMS for all students to access.

3.2.1.4 Phase 3: Focused Application Task (FAT)

To ensure that students are adequately prepared for the Focused Application Task (FAT), the lecturer, as the content expert, clarified any uncertainties regarding the content by means of a short and specific mini-lecture (Michaelsen et al., 2008, p. 25). After teams had completed the

RAP, learning teams advanced to the in-class Focused Application Task (FAT). The FAT was based on the assigned preparatory material, and structured around real-life, realistic and authentic problems that students may encounter as a health professional. Michaelsen and Sweet (2008a, p. 20) indicate that the FAT should be structured around the 4 S-elements namely significant problem, same problem, specific choice and simultaneous reporting.

Sibley and Ostafichuk (2014, p. 9) point out that contextual factors may require one to adapt the TBL learning event. Although adaptation is acceptable, the authors warn that a significant portion of the instructional power could be lost as a result. Realizing that our context required adaptation, the advantages of using only three of the 4 S's, namely significant problem, same problem and specific choice, still outweighed the risks of losing some of the instructional power of the FAT. Due to the time constraints in the time table, simultaneous reporting was not always possible. However, where possible, teams did get the chance to explain their decisions, solutions and/or clarify their points of view to other teams.

3.3 THE OBJECTIVE OF THE STUDY

This study explored how Team-based Learning can be used to enhance student engagement and interprofessional collaborative learning between health and social care students in a compulsory, philosophy-based module within a large class setting.

3.4 RESEARCH DESIGN AND METHODOLOGY

3.4.1 Research paradigm and strategy of inquiry

This mixed method study with a convergent design was anchored in a constructivist-interpretivist paradigm. The main data set was qualitative in nature (focus groups and student reflections), with quantitative data included in the form of statistics extracted from the LMS regarding student engagement on the site.

3.4.1.1 Context of the study

The study was conducted in a second year compulsory health philosophy module in a faculty of health sciences of a large, public, higher education institution in South Africa. The module previously had a reputation of low student engagement, poor class attendance and negative student perceptions. This motivated the re-design of the teaching approach towards TBL. The students represented fourteen health/social care professions, and totalled over 1300 students.

An all-inclusive voluntary sample (n=346) was used, with students providing informed consent before participating in the study. This study does not aim to generalise the findings to university teaching in South Africa and abroad.

3.4.2 Data collection and analysis

Qualitative data collection methods included nine focus group interviews (with between 3-6 participants) using a semi-structured interview schedule (response rate: 24.8%), and end-of-semester module reflections of 346 students (response rate 25.9%). The qualitative data sets (the focus group interviews and end-of-semester module reflections) were analysed separately using thematic analysis and merged for reporting purposes. To conduct the thematic analysis we used the approach of Tesch (1990, pp. 113-125) and a deductive and inductive approach was followed. Due to the nature of this study, participants did not need to be a representative sample of any given gender, age, ethnic background and/or profession.

The automated data captured by the Learning Management System (LMS) when students worked in the LMS was analysed as evidence of student engagement with the module content before, during and after the contact sessions. Only the data from the students who gave permission (n= 346) was used.

Ethics clearance was obtained from the faculty's Health Research Ethics Committee of the Faculty of Health Sciences and the university's Research Data Gatekeeper Committee of the NWU.

3.5 FINDINGS

Student activity on the LMS indicated that the 346 students included in this study, visited the module site a total of 136 037 times, with an average of 397 visits per student, during the semester. Site visits increased visibly during the week (days) before the classes, indicating that students had accessed the module content in preparation for the iRAT, tRAT and FAT.

The qualitative data provided evidence of the engagement and interprofessional learning that happened during the semester. The following main themes and sub-themes were identified: Theme 1: Cognitive, behavioural and emotional engagement; Theme 2: Interprofessional collaborative learning with sub-themes 2.1: Learning about, from, and with each other and 2.2 Working collaboratively towards a common goal; Theme 3: Teamwork, and Theme 4: TBL's love-hate relationship. In support of the findings, only a few quotes were extracted from the wide

range of responses from both data sets (focus group discussions and end-of-semester module reflections)

3.5.1 Theme 1: Engagement within the cognitive, behavioural and emotional

3.5.1.1 Engagement within the cognitive domain

In terms of cognitive engagement, students indicated that being engaged with the content, their peers and the lecturer, enhanced cognitive engagement. The following extracts demonstrate cognitive engagement:

“Increased my focus and that made me to study higher level critical thinking skills and promotes meaningful learning experiences.” [D13:159]¹⁴

“It helped me think critically and practically.” [D13:342]

“I will agree with what Number 3 said earlier about you are one day going to be in that position where you have to cooperate with other professions as well; also to learn that your opinion is not the only one; that other people may have better experience or better ideas than you have, and also how to deal with conflict. I think basic life skills actually.” [D7:38]

“To be flexible in mind and not be biased when it comes to thinking. My reasoning capacity has increased also.” [D11:40]

“It allowed me to see from the different perspectives allowing me to achieve a better understanding of how to approach problems from different angles.” [D10:143]

“This approach also made me realize that some things, you can do by yourself, you just need that helping hand to guide you into the right direction.” [D13:10]

Based on the responses, it is clear that the teaching and learning approach required of students to engage on a deeper level with the content, their peers and the lecturer. As a result, they felt that they developed higher-order critical thinking and reasoning skills. Participants felt that working collaboratively exposed them to diverse perspectives and approaches when it comes to problem-solving and that it had challenged their own hegemonic and/or biased thinking. Students also felt that the approach increased their in-class participation, attention span and focus and significantly contributed to their development as self-directed learners, with the lecturer's role changing to a facilitator who guides their learning into the right direction.

¹⁴ Participants' direct words are cited in square brackets e.g. [D13:159]. The D followed by the number refers to the data source and the line number(s) where the direct quotation can be found within the data source, is indicated after the semi-colon.

3.5.1.2 Theme 1: Engagement within the behavioural domain

The information deduced from the qualitative data presented an optimistic picture of student engagement within the behavioural domain. The following are some of the responses:

“In terms of doing group activities in classroom it taught me discipline and that preparation before class is important because other group members come prepared.” [D10:86]

“The learning and teaching of the content have enhanced the engagement in a manner that to always pay attention to smaller details, prepare on time, to read carefully the content before applying it to the IAT, the RAT and the FAT.” [D13:286]

“The class interactions with the group helped to better work efficiently in a group and to ask any questions and have my fellow classmates from other disciplines to explain better and at my level.” [D13:327]

“I think it’s also easier,...like you get some people who are too...uhm...shy to ever even ask the questions, but when you are in a group, you are in a group with those people and eventually with time you get familiar with them. So, it is easy for you” [D3:17]

Based on student responses, it became clear that students developed a stronger sense of accountability when it came to preparing for, and attending class, as their team relied on them to successfully complete the in-class activities. Numerous students also reported that working in their smaller learning teams gave them the courage to ask questions and seek assistance from their peers and the lecturer.

Although students indicated that the method of instruction was something new and different, they enjoyed being more engaged. They felt that being engaged not only improved their academic achievement, but also contributed significantly to the development and/or improvement of essential skills they would need when entering the workplace and in their every-day lives. These essential skills include collaboration, communication, open-mindedness, decision-making and conflict management. Some of the students responded as follows:

“The in-class activities taught me the power of collaboration and communication. I learnt to interact better with other students and to respect their different opinions.” [D10:25]

“The in-class activities had a positive impact in the learning experience, because everyone was engaged and was participating which made everyone sharing their views, therefore we saw things in different perspective.” [D11:33]

“This definitely taught me to work with other people. In the workplace one day, you will also have to work with other people, thus although we had different opinions, we could discuss them and come to an agreement. We learned to deal with conflict.” [D10:20]

“The scratch cards were an excellent way to test your decision making skills as a team as everyone had to come up and give suggestions and their opinions in order for us to agree on a single answer. This helped your decision making skills as a group and also allowed people to work together. Besides the learning point of view, the teaching style were very fun.” [D10:111]

3.5.1.3 Theme 1: Engagement within the emotional domain

Within the emotional domain, the vast majority of students experienced the enhanced levels of engagement as positive. The following are some of the responses in relation to student engagement on the emotional domain:

“It was fun and inspiring as we had to work as a team, sharing different ideas and having to bring the brains in order to come to one conclusion.” [D10:279]

“I learnt each one of us have different opinions or perspectives on the same thing we learnt, but as soon as we started combining our work it showed productivity and I personally learnt to trust my group through the e.g. scratch card activities.” [D10:181]

“With my students it allowed me to be very engaging with them because we relied on each other for FAT answers and this build our level of trust rather quickly.” [D13:205]

“The teaching and learning approach help build one’s confidence in terms of speaking with different people.” [D13:132]

“With my fellow student – I learnt how to be patient, make a good communication, interact with people and increased by confidence in speech as I wasn’t judged.” [D13:216]

“The different points of view enhanced a different and deeper understanding of the work.” [D10:27]

“I was able to broaden my trail of thoughts. It allowed me to grow as an individual, as it established healthy team building as we had to make decisions as a group.” [D10:102]

“I also learned to work with other people because I was not comfortable with working with other people or sharing my views with people.” [D10:154]

Based on the responses, students felt that engagement during the TBL activities was interesting, fun, enjoyable and motivational. Numerous students felt that they had developed a sense of trust in their fellow team mates. They felt that not being judged gave them the confidence to ask and answer questions as well as give constructive feedback. Data is saturated with students valuing the exposure to diverse ways of knowing, being and doing. Students noted that engaging with other students during the in-class activities allowed for a better understanding of the uniqueness and differences each member brings to the discussion. Noteworthy is the mention of personal growth amongst participants from being tolerant to embracing and respecting their fellow team members.

Next, we will share several representative quotes about how students perceived the interprofessional collaborative learning in this module.

3.5.2 Theme 2: Interprofessional collaborative learning

3.5.2.1 Sub-theme 2.1: Learning about, from, and with each other

The majority of participants felt strongly that working in assigned and predetermined interprofessional teams during the in-class activities created the ideal opportunity for them to learn about, from, and with each other. The following excerpts reveal how they felt about learning about, from, and with each other:

“So, I think it’s preparing us for that [working collaboratively], you understand, because have to set our differences aside and focus on the task; the task is to heal the patient, how do we go about and we have to do that within a framework. So, I love the approach about the module. I really love the approach.” [D7:29]

“I got a chance to learn from other students and I had the best learning experience from the in-class activities... It allowed me to challenge myself, it allowed me to not only think about myself but of others too and most importantly to have mutual respect for others.” [D10:1]

“The in-class activities helped me realize that the discipline I belong to has a major impact in other disciplines as well as other disciplines on my discipline. I made me consider more views and ways of doing a specific task and that the patient’s view of the situation is extremely important.” [D10:39]

It is clear from the data that the interprofessional learning activities enhanced interprofessional collaboration, communication and team working skills. The data is saturated with students valuing the exposure to diverse disciplinary knowing, being and doing, and numerous students stated that working collaboratively in interprofessional teams, challenged their mono-disciplinary thinking and reasoning. The majority of students stated that learning more about each other’s profession, created a sense of mutual respect and understanding.

3.5.2.2 Sub-theme 2.2: Working collaboratively towards a common goal

The information deduced from the data indicated a deeper understanding and insight into the value of collaborative problem-solving towards a common goal, as the following quotations show:

“This allowed me to gain more knowledge on other professions, and how we can work together for one cause.” [D10:9]

“The teaching and learning approach was good and specific for the content because we got to understand the content better by applying it to situation we face in our different discipline.” [D13:96]

“It helped me get different viewpoints and opened up discussions for me to learn about other fields. This will be helpful one day when I enter the work field because I will get to easily interact with other people from different disciplines and provide holistic quality health care.” [D10:98]

Based on the above verbatim quotations from students, it is clear that the exposure to diverse disciplinary knowledge and perspectives not only enhanced their understanding of their own discipline, but also allowed them to see the interconnectedness of health/social care related disciplines, and how they can work together and draw from each other to solve problems and achieve a shared and common goal.

3.5.3 Theme 3: Teamwork

The enhancement of teamwork-related skills emerged strongly in the data, as the following quotations show:

“The in class activities allowed me to realize how effective group work could assist one, because I was able to learn from other students as we were working collaboratively.” [D11:46]

“I will agree with what Number 3 said earlier about you are one day going to be in that position where you have to cooperate with other professions as well; also to learn that your opinion is not the only one; that other people may have better experience or better ideas than you have, and also how to deal with conflict. I think basic life skills actually.” [D32:36]

“This approach existed of group work in class time, which made me realise the importance of teamwork between disciplines.” [D13:311]

“All the contact sessions were of great help because in overall I was able to understand that the health science is basically all about teamwork. So much has been learned from students from other disciplines especially when we had to work collaboratively towards solving a problem or fulfil a common purpose.” [D10:89]

“I will admit that I did learn a lot about team work and how it should be done in the correct manner.” [D10:204]

“This allowed me to learn and listen to what other students from different disciplines have to say about their specific discipline and knowledge about it. Without having students from different disciplines, we wouldn’t have been able to complete the activities in class. It also opened our eyes as an individual that working in a team is very important and it will therefore benefit us in the future.” [D10:241]

From the data it became abundantly clear that working in interprofessional learning teams contributed to the development and/or enhancement of skills, such as collaboration, communication, being open-minded to diverse disciplinary and personal perspectives and approaches, problem-solving, shared leadership, decision-making and conflict management. Numerous students felt that the teaching and learning approach created a safe environment where they could practice inter-personal and teamwork related skills. They also felt that they could use these skills in their personal lives as well as in the workplace in future.

A small number of students indicated that they experienced working in interprofessional teams as overwhelming at first, as it compelled them to leave their comfort zone. However, it is noteworthy to mention that these students felt, that as time passed, they felt more at ease working in their interprofessional teams and eventually, valued being forced from their comfort zone. The following excerpts reveal how the students felt about leaving their comfort zone by working in an interprofessional team:

“My overall impression was good and it forced us to come out of our comfort zones. I liked the approach.” [D10:248]

“This approach helps to get you out of your comfort zone and talk to your lectures.” [D13:281]

“I also learned to work with other people because I was not comfortable with working with other people or sharing my views with people.” [D10:154]

“I learnt a lot from my fellow students as we were ‘forced’ to work together. Which forced my unsocial self to interact and learn how to work with people in a good way.” [D13:284]

3.5.4 Theme 4: TBL’s love-hate relationship

Although the vast majority of students enjoyed the use of TBL as teaching and learning approach and the interprofessional collaboration, a very small number of students indicated that they experienced difficulty in the module and/or did not enjoy the module. From the data we identified three possible reasons. Firstly, some students grappled with the online component of TBL (Phase 1). Secondly, some students did not understand the rationale of doing the module and how the module would benefit them in their current studies, personal life and/or future career, and thirdly, they enjoyed a lecturer-centred approach with limited to no engagement from their side. These students had this to say:

“The only thing I don’t like about this module is that it is online but it makes it convenient but that’s just my view.” [D14:82]

“Online learning is difficult for us as students. So, many of us need to use data and stuff like that. We only have access Wi-Fi at campus, because when you’re home you don’t have that and you have to do quizzes online and things like that.” [D1:23]

“I personally do not like it very much. The prepping before class...I’m not one of the students that preps well ahead of time. I personally enjoy sitting in class.... I want to go to class and get information in class.” [D9:7]

“Okay, I think there are students...they don’t like this module, because they don’t even understand why we’re doing it, like in my course we do Nutrition and Psychology; that’s our Major, but now we have Philosophy and we’re like why do we do this module? We don’t understand what this is going to benefit us and all those things. So, when someone has to go to class or somebody has to do the preparation test and like engage with the others, they’re like “I don’t need this; I don’t have to do it” ...I think that’s also why they don’t engage with it.” [D3:21]

The importance of student buy-in has been highlighted by Parmelee et al. (2012, p. e284) and more recently once again by Branneya and Priego-Hernándezb (2018, p. 132). For the successful implementation of Team-based Learning, student engagement and interprofessional collaborative learning, lecturers need to be very transparent about the rationale for adopting a stronger blended and learning-centred approach, using TBL and interprofessional collaborative learning.

3.6 DISCUSSION OF FINDINGS

The findings confirm that TBL can be an effective educational approach to foster interprofessional collaborative learning between health and social care students in a compulsory, philosophy-based second-year module within a large class setting. Participant feedback confirmed an overall positive experience and themes such as 1) enhanced cognitive, behavioural and emotional engagement, 2) valuing learning about, from and with students from different disciplines, 3) advantages of working collaboratively in learning teams and 4) the value of interprofessional teamwork for problem-solving, support the notion of the positive impact of TBL

Findings focusing on enhanced student engagement concurs with TBL literature where an increased level of engagement was reported by Parmelee et al. (2012), Michaelsen and Sweet (2014) and Bolívar-Ramos and Martínez-Salgueiro (2018). Using the multidimensional clustering of Fredricks et al. (2004, pp. 60-61) to identify cognitive, behavioural and emotional engagement,

the results of this study provide valuable and supportive insight into student engagement within the three domains.

Within the cognitive domain, our findings support a study conducted by Huggins and Stamatel (2015, p. 233), who found that in relation to traditional lectures, adopting a TBL approach contributes more to the development of students' critical thinking, critical reasoning and self-regulatory behaviour. Furthermore, the findings of our study also reveal that students value the exposure to diverse individual and disciplinary perspectives and approaches, as they challenge their hegemonic and mono-disciplinary thinking. Moreover, they felt that it prepares them for the workplace where they will be required to function in a collaborative, team-based care environment and deliver all-inclusive, preventive, holistic health care.

The findings on student behavioural engagement is also supported by literature. For example, Branneya and Priego-Hernándezb (2018, pp. 129-130) point out that TBL develops a stronger sense of accountability amongst students. Our findings confirm an increase in pre-class preparation and class attendance, as students felt their learning team relied on them to complete the in-class team activities (tRAT & FAT). Our results not only emphasise the importance of small group learning in a large class setting, but also shows that it is possible to implement small group learning in a large class with a 1000+ students. A large number of students confirmed that working in smaller learning teams increased their courage to participate in the online and face-to-face learning activities, ask questions and seek assistance from their peers and the lecturer (Gullo et al., 2015, p. 2).

The use of TBL to develop essential skills such as collaboration, communication, decision-making and problem-solving are highlighted in many studies (Bolívar-Ramos & Martínez-Salgueiro, 2018; Eksteen, 2017; Michaelsen & Sweet, 2008a; Parmelee et al., 2012; Rands et al., 2017). The authors agree that adopting a TBL approach is usually associated with the development of team-work related skills, something we also found in this study. In line with the findings by Black et al. (2016, p. 21) and Van Wyk and De Beer (2017, pp. 36-37), the majority of our students felt strongly that working in assigned and predetermined interprofessional teams during the in-class activities (tRAT & FAT) created the ideal opportunity for them to learn about, from, and with each other. Our findings concur that interprofessional learning activities enhanced interprofessional collaboration, communication and team working skills, as highlighted by Dow et al. (2017, p. 1). Additionally, students noted that working in interprofessional learning teams also developed skills such as open-mindedness, shared leadership and conflict management. Noteworthy is the large number of students who highlighted the transferability of these skills to their every-day lives, while working in interprofessional teams to complete the in-class TBL activities.

Overall, the majority of participants expressed that TBL is an effective method to enhance student engagement in an interprofessional large class setting and perceived their enhanced engagement with the content, peers and the lecturer(s) as positive and valuable. Participants emphasized that being more engaged with the content, their peers and the lecturer(s) not only improved their academic achievement, but contributed significantly to the development and/or improvement of essential personal skills such as collaboration, communication, open-mindedness, conflict management, respect, tolerance and embracing diversity. This study also supports literature that students find the use of TBL as interesting, fun, enjoyable and motivational (Huang & Lin, 2017). However, despite the overall positive results regarding satisfaction with TBL, our findings confirm a dissatisfaction from a small number of students. The reasons provided include grappling with the online component of TBL (Phase 1), not understanding the rationale for using TBL as educational approach, and preferring a lecturer-centred approach with limited to no engagement from their side.

In relation to grappling with the online component, Saliba et al. (2013, pp. 30-32) stresses the importance of careful planning and design, providing sufficient support to students, and getting continuous feedback from students to enhance their online learning experience. Our findings support research by O'Connor and Donovan (2018, p. 3382), who point out that some students may experience difficulty to adjust from a lecture-centred, passive approach to a learning centred, active approach. This study provides sufficient evidence that TBL is an effective method of instruction to enhance student engagement and interprofessional collaborative learning, however, the response of a small number of students indicating that they were more engaged within a traditional lecturing setup, was unexpected and not supported by research. We could not explore these responses as all responses were anonymized due to the lecturer-student power-relationship. To manage this transition from passive to active learning, Michaelsen and Sweet (2008a, pp. 13-14) provides valuable insight into getting student buy-in, an essential element to effective student engagement, TBL and interprofessional learning (Black et al., 2016, p. 21; Frenk et al., 2010, p. 1924).

Supporting the findings by Black et al. (2016), the issue of mutual trust emerged strongly from our data. In contrast to traditional lectures, students indicated that within their small groups, they did not feel judged and as a result, they had the confidence to ask and answer questions as well as give constructive feedback. In line with the findings by Barr and Low (2013, p. 20), a small number of students also indicated that although working in interprofessional teams had compelled them to leave their comfort zone, they valued being “forced” to collaborate with others. Findings from our study further revealed that students valued being sensitised to diverse ways of knowing, being

and doing. Our students also reported enhanced personal growth and sensitivity towards diversity. These findings support the thinking of Peters and Mathias (2018, pp. 62, 64), who argue that once health professionals recognise their diversity is a strength, they can draw from their diverse experience, knowledge, and understanding as part of their own on-going transformative being and becoming.

A small number of students indicated that they experienced working in interprofessional teams as overwhelming at first, as it forced them outside their comfort zone. However, it is noteworthy to mention that, as time passed, these students felt more at ease working in their interprofessional teams and eventually, valued the fact that they were taken from their comfort zone.

3.7 LIMITATIONS OF THE STUDY

This study explored student engagement and interprofessional collaborative learning between health and social care students through the use of TBL in a compulsory, philosophy based, second-year module with a 1000+ students.

Students are regarded as a vulnerable population as they are a captive audience in the classroom. In this study I acted as both researcher and as the lecturer responsible for teaching the module and due to ethical reasons, I was not allowed to engage with research participants during data gathering. Not being able to engage with the research participants could have contributed to the loss of some valuable insights, especially during the focus group interviews. To minimise the power relation between the student and myself, as lecturer-researcher, I made use of a fully trained research support team. We also experienced that some students, despite confirming attendance, neglected to show up for the focus group interview, resulting in some of the groups being smaller than planned.

3.8 RECOMMENDATIONS FOR IMPLEMENTING TBL IN LARGE CLASS SETTINGS

TBL was implemented in a large class setting using blended learning. Not all students are early adopters when it comes to using an alternative teaching method other than the one they are used to. For this reason, students need to be eased into adopting a blended approach where they are expected to engage with the content within the online environment prior to the face-to-face session and within the classroom, and work within their interprofessional teams to apply the content. The literature is clear that efforts should be made to get student buy-in, and students should be inducted into the use of TBL. Suggestions on how to do this, are available in the literature. However, studies exploring perceived experiences of students on the methods used to get their buy-in, how they were inducted into the use of TBL and the appropriateness and/or

efficiency of the methods used, are limited. Due to the importance of student buy-in, it is therefore recommended that a further study should be launched to investigate student buy-in into the use of TBL and the appropriateness and/or efficiency of the methods used to do that.

The instructional power of TBL lies in the proper formation and management of teams and sequential combination of the three phases in the learning design (§Figure 1). As suggested in literature, team formation should be done by the lecturer, be transparent and portray a fair distribution of personal qualities to ensure team success. Although adapting TBL to accommodate contextual factors, we recommend that all phases should be included. Moreover, as learning in the phases builds onto one another, we further recommend keeping to the sequential nature of the phases to fully utilize the instructional power of TBL. This does not imply including all three phases in each session, but strategically planning the learning design so that each of the phases are included during a TBL cycle.

During the preparatory phase, students engage with the study material on an individual basis. It is therefore essential to include as much guidance and support as possible, with clear instructions to guide student learning. To accommodate learning preferences, include both written and audio-visual learning material to optimise student learning. In-class activities should pivot around student “doing”, and stimulate deliberation during the tRAT and FAT. Activities should be relevant and applicable to real world problems that students are facing, or will be facing in the workplace. When moving the appeal process online, clear instructions on how the appeal process works and using an appeal template that students can use when launching an appeal, are beneficial. When designing the tRAT and FAT, the time assigned for discussion and deliberation is often underestimated. Sufficient time should be allocated for in-depth discussion and decision-making.

3.9 CONCLUDING REMARKS

This study explored how a medium-impact blended learning design using TBL can enhance student engagement and interprofessional collaborative learning in a compulsory, philosophy based, second-year module with a large class setting. Within a blended learning environment, the online (Phase 1) as well as the face-to-face (Phases 2 & 3) component of TBL resulted in enhanced student engagement within the cognitive, behavioural and emotional domain.

Working in assigned and predetermined interprofessional learning teams created the ideal opportunity for students to learn about, from, and with each other. This situation also notably enhanced interprofessional collaboration, communication and team working skills. Learning more about other health and social care professions created a sense of mutual respect, understanding and appreciation. Working in interprofessional teams exposed students to diverse disciplinary

knowing, being and doing, which in many cases challenged mono-disciplinary thinking and reasoning. Interprofessional teams allow for deeper understanding and the development of interpersonal and teamwork skills, which in future, will help students to function more effectively when entering the health care working environment.

This research gave new insight regarding the successful implementation of TBL in a large, compulsory, undergraduate module in existing health and social care curricula and infusing it with interprofessional learning opportunities such as the tRAT and FAT. Not only did TBL introduce students to IPE and expose them to interprofessional collaborative activities, but it also cultivated an understanding of the importance of working collaboratively with other professions for holistic health care.

Declarations

Ethics Approval and Consent to Participate

Ethical approval was granted by the North-West University Health Research Ethics Committee (NWU-00014-19-S1), and the North-West University Research Data Gatekeeper Committee (NWU-GK-2019-022). All participants provided written informed consent.

Consent for Publication

All participants as well as the authors gave consent for the anonymous publication of data.

Declaration of interest

The authors report no conflicts of interest and was responsible for writing the entire article.

Availability of Data

Upon request, data can be made available.

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CHAPTER 4

CONCLUSION, LIMITATIONS AND RECOMMENDATION

4.1 Introduction

Teaching a compulsory, philosophy based 2nd year module with a 1000+ undergraduate second-year health students from different health/social care disciplines poses unique challenges when it comes to engaging students and facilitating interprofessional collaborative learning (§1.2.1, 1.3). This research was undertaken to explore how TBL can be used to enhance student engagement and foster interprofessional collaborative learning in a compulsory module within a large class setting (§1.4). The research question posed was: “How can a medium-impact blended learning design, using a Team-based Learning approach, address the challenges related to large class teaching and learning in an interprofessional compulsory module setting?”. Objectives included examining how a medium-impact blended learning design can enhance both engagement and interprofessional collaborative learning through Team-based Learning activities (§1.5).

This was done, firstly, by focus group interviews using a semi-structured interview schedule and asking participants to complete an end of semester module reflection activity, and secondly, by using the automated data capturing function in the Learning Management System (LMS) when students worked in the LMS (§1.6.2.2).

This concluding chapter summarises the main findings and conclusions drawn from the research done according to the objectives of the study.

4.2 Main findings

4.2.1 Objective 1: Examining how a medium-impact blended learning design can enhance student-to-student, student-to-lecturer and student-to-content engagement

Overall, the majority of the participants reported that the online (Phase 1) and well as the face-to-face component of TBL (Phases 2 and 3) resulted in engagement within the cognitive, behavioural and emotional domain (§3.5.1, 3.5, 3.5.3). Within the cognitive domain, students highlighted that being engaged with the content, their peers and the lecturer, contributed to their development as self-regulated learners (§2.2.1, 3.5.1). Participants reported that the Readiness Assurance Process (RAP) and Focused Application Task (FAT) stimulated higher order thinking and required of them to analyse, synthesise, think and reason critically, to share and make decisions in order

to solve a problem. The majority of participants emphasised that engaging with their peers challenged their way of thinking as well as necessitated them to be more open-minded (§2.7, 2.8).

Within the behavioural domain, most of the participants reported a stronger sense of taking ownership for their learning and accountability, as they did not want to let their team down (§2.10.3.5.2). Moreover, students reported that they spent more time on preparing for class and that they felt they had to attend class as their team relied on them to successfully complete the in-class tRAT and the FAT. An extensive number of participants reported that due to the nature of the in-class tRAT and FAT, their in-class participation, attention span and focus increased significantly (§3.5.2). Numerous participants also reported that they had the courage to ask questions and seek assistance from their peers and the lecturer to have a better understanding of the work and successfully complete the in-class team activity (§3.5.2). Interesting though, was the fact that although adopting TBL activities to enhance the student-lecturer engagement, a few students still viewed traditional lecturing, with lecturing as primary method of instruction, as more engaging. These statements need to be further explored to determine the reasoning behind them.

Overall, the majority of participants indicated that although the method of instruction was something new and challenging, they enjoyed being more engaged (§3.5.2). They also indicated that learning was fun, however, in some cases, selected participants indicated that they did not like certain elements such as working on the LMS, not receiving a traditional lecture and the nature of the in-class small group learning activities (iRAT and FAT). Irrespective of these individual dislikes, the vast majority of participants felt that TBL not only improved their academic achievement, but also contributed significantly to the improvement of essential skills they would need when entering the workplace and in their every-day lives. These essential skills include collaboration, communication, open-mindedness and conflict management (§3.5.2).

Within the emotional domain, the majority of participants indicated that they experienced the use of TBL to enhance engagement with the content, their peers and the lecturer as a positive and valuable experience (§3.5.3). Indications of emotional engagement that emerged from the data included that participants found engaging with the content and peers during the TBL activities as interesting, fun, enjoyable and motivational. Numerous participants indicated that the TBL activities over the period of the semester contributed to the development of a sense of trust in their fellow students (§3.5.3). Many students reported that working in a small team gave them the confidence to interact with other students. Because they relied on each other to successfully master the outcomes, participants noted that they did not feel judged and had the confidence to ask and answer questions, as well as give constructive feedback. Participants also valued the exposure to diverse ways of knowing, being and doing, and felt strongly that engaging with others contributed to their personal growth (§3.5.3). Participants noted that engaging with other students

during the in-class activities allowed for a better understanding of the uniqueness and differences each member brings to the discussion. Noteworthy is the mention of personal growth amongst participants from being tolerant to embracing and respecting their fellow team members (§3.5.3).

Student activity on the LMS indicated that the 346 student included in this study visited the module site a total of 136 037 times, with an average of 397 visits per student, during the semester. Site visits increased visibly the week (days) before the classes, indicating that students had accessed the module content in preparation for the iRAT, tRAT and FAT (§3.5).

4.2.2 Objective 2: Exploring how a medium-impact blended learning design can enhance interprofessional collaborative learning through Team-based Learning activities

The majority of participants are of the opinion that the use of TBL enhances interprofessional collaborative learning. Participants felt strongly that working in assigned and predetermined interprofessional teams during the face-to-face sessions, the in-class tRAT, FAT and clarification session created the ideal opportunity for them to learn about, from, and with each other (§3.5.4). Participants confirmed that interprofessional learning activities enhanced interprofessional collaboration, communication and team working skills (§3.5.6).

Participants were of the opinion that interprofessional collaborative learning opportunities should be included in the curriculum. Participants mentioned that working in interprofessional learning teams not only exposed them to-, but also allowed for the sharing of disciplinary thinking, knowledge, perspectives, approaches and skills (§3.5.4, 3.5.6). The data is saturated with participants' valuing the exposure to diverse disciplinary knowing, being and doing and numerous participants stated that working collaboratively in interprofessional teams, challenged their mono-disciplinary thinking and reasoning (§3.5.5). Participants viewed the interprofessional sharing and learning during the in-class tRAT, FAT and clarification session as extremely insightful. They noted that by listening to diverse disciplinary inputs from team members, they realised the value of integrating diverse disciplinary perspectives and approaches when trying to solve a problem. Moreover, the majority of them stated that learning more about each other's profession, created a sense of mutual respect, understanding and appreciation. Noteworthy is a participant's reference to the value of disciplinary 'cross-pollination', as the disciplinary knowledge and perspectives gathered from the other disciplines could be applied to enhance their understanding of their own discipline, and how their discipline fits into a larger framework (§3.5.4, 3.5.5).

Only a very small number of participants indicated that they experienced working in interprofessional teams as overwhelming at first, as it compelled them to move outside their

comfort zone. However, it is noteworthy to mention that these participants commented that as time passed, they felt more at ease working in their interprofessional teams. They continued saying that eventually, they valued the fact that they were forced outside their comfort zone as the interprofessional engagement contributed to their academic and personal development (§3.5.6). In line with the literature, transparency about, and easing students into the use of interprofessional teamwork, collaborative learning, enhanced engagement and TBL, as method of instruction are of the utmost importance to ensure student buy-in and optimal learning (§2.5.2, 3.5.7, 3.6).

Participants reported that working in interprofessional teams not only exposed them to the uniqueness of each discipline, but also to their interconnectedness and how they could draw from each other and work together to achieve a shared goal – in this study, to ensure holistic patient care (§3.5.4, 3.4.5). Participants stated that the tRAT, clarification session and FAT allowed for active engagement and the application of knowledge. As a result, participants felt that being exposed to different disciplinary perspectives allowed for a deeper understanding of the topic at hand and problem under investigation (2.8, 3.5.5).

The enhancement of teamwork-related skills emerged strongly in the data. The majority of participants noted that working in interprofessional learning teams enhanced the skills they need for effective interprofessional collaboration (§3.5.6). These skills include collaboration, communication, being open-minded to diverse disciplinary perspectives and approaches, problem-solving, shared leadership, decision-making and conflict management. It is also noteworthy that numerous participants indicated that the skills developed as a result of the interprofessional collaboration, could be used in their personal lives (§3.5.6). Numerous participants also indicated that working collaboratively in an interprofessional team, enabled them to practice their inter-personal and teamwork skills, which in future, will help them to function more effectively in the workplace (§3.5.6, 3.6).

Overall, the vast majority of participants experienced learning about, from, and with students from other disciplines through the use of in-class Team-based Learning activities as a positive and highly beneficial experience (§3.5.5, 3.5.6). Numerous participants indicated the need for including interprofessional collaborative learning opportunities on undergraduate level as it is educational, insightful and broadens their perspective and understanding. A very small number of students indicated that they did not learn anything and/or did not perceive the learning experience as a positive. At closer investigation, one could argue that many of these individuals could have a surface approach to learning, as they argued that it was the lecturer's responsibility to "teach" them. They favoured the lecturer talking and noted that they did not enjoy being engaged during the learning process. It was also evident that they did not value working in teams

and/or learning from fellow students. From analysing these responses, one could argue that the foci pivot around studying the module content and to complete the module, and not necessarily learning about, from, and with students from other disciplines and to explore ways to combine expertise to enhance the quality of health care. It is clear from the analysis that lecturers need to be very transparent about the rationale for adopting a stronger learning-centred approach, using TBL and interprofessional collaborative learning. Being more transparent could have resulted in all students seeing the bigger picture (§2.5.2, 3.5.7).

4.3 Limitations of the study

Because this study was concerned only with examining how a medium-impact blended learning design can enhance student engagement and interprofessional collaborative learning through the use of Team-based Learning activities in a compulsory, philosophy based, 2nd year module with a 1000+ students, the findings cannot be generalised to university teaching in South Africa and abroad. Although this study provides sufficient evidence that TBL is an effective method of instruction to enhance student engagement and interprofessional collaborative learning, it cannot successfully provide insight into why a small number of students were of the opinion that there was more engagement within a traditional lecturing setup than within a TBL learning environment.

Students are regarded as a vulnerable population as they are a captive audience in the classroom. As the researcher in this study, I was also the lecturer responsible for the teaching of the module at the Potchefstroom Campus, and due to ethical reasons, I was not allowed to engage with research participants (§1.11.1, 1.11.4). To minimise the power relation between the student and myself as lecturer-researcher, I made use of a fully trained research support team (§1.11.1, 1.11.4). However, not being allowed to engage with the research participants could have contributed to the low response rate (24.8%), and some valuable insights could have been lost during the focus group interviews as an independent facilitator facilitated the focus group interviews.

4.4 Recommendations for further research

This research gave new insight regarding the successful utilisation of an existing compulsory, undergraduate module in existing health and social care curricula and infusing it with interprofessional learning opportunities such as the tRAT and FAT. Not only did it introduce students to IPE and exposed them to interprofessional collaborative activities, but also cultivated an understanding of the importance of working collaboratively with other professions for holistic health care. Utilising a compulsory module within curricula and adapting the purpose to exposing and enhancing IPE, could address IPE related challenges, such as scheduling, finding sufficient

place and time for students to engage in interprofessional activities and limited resources. To further expand on this study, it is recommended that an investigation should be launched once these participants started working as health professionals to investigate the extent to which (if any) this innovative approach contributed to their development as working health professionals. Also recommended is an investigation, exploring how interprofessional collaborative learning using TBL could be incorporated into all undergraduate curricula at all year levels, to ensure a systematic and integrated approach to conducting IPE at the North-West University.

Not all students are early adopters when it comes to using an alternative teaching method other than the one they are used to. For this reason, students need to be eased into adopting a blended approach where they are expected to engage with the content within the online environment prior to the face-to-face session and within the classroom, and work within their interprofessional teams to apply the content. The literature is clear that efforts should be made to get student buy-in, students should be inducted into the use of TBL, and suggestions on how to do this, are available in the literature (§2.5.2, 3.6). However, studies exploring the perceived experiences of students on the methods used to get their buy-in, how they were inducted into the use of TBL and the appropriateness and/or efficiency of the methods used, are limited. Due to the importance of student buy-in, it is therefore recommended that a further study should be launched, investigating student buy-in into the use of TBL and the appropriateness and/or efficiency of the methods used.

Responses from participants were clustered around the cognitive, behavioural and emotional domains, however, further studies exploring the interplay between these domains and how each of these domains influenced each other within a TBL learning environment, are recommended. From the data it is evident that TBL stimulates engagement, however, the level of interplay between the cognitive, behavioural and emotional domain within each of the TBL phases may contribute to a better understanding on how a specific instructional strategy such as TBL can increase student engagement (Bender, 2017, p. 3). We also recommend that an investigation should be launched to investigate the academic performance of each participant in relation to their cognitive, behavioural and emotional engagement.

4.5 Conclusion

This study explored how a medium-impact blended learning design using TBL can enhance student engagement and interprofessional collaborative learning in a compulsory, philosophy based, 2nd year module with a large class setting.

Objective 1: This study found that within a blended learning environment, the online (Phase 1) and well as the face-to-face (Phases 2 & 3) components of TBL resulted in enhanced student

engagement within the cognitive, behavioural and emotional domain. Overall, the majority of participants expressed that TBL is an effective method to enhance student engagement in an interprofessional large class setting and perceived their enhanced engagement with the content, peers and the lecturer(s) as positive and valuable. Participants emphasized that being more engaged with the content, their peers and the lecturer(s) not only improved their academic achievement, but also contributed significantly to the development and/or improvement of essential personal skills such as collaboration, communication, open-mindedness, conflict management, respect, tolerance and embracing diversity.

Objective 2: This study found that working in assigned and predetermined interprofessional learning teams created the ideal opportunity for students to learn about, from, and with each other. It also notably enhanced interprofessional collaboration, communication and team working skills. Learning more about other health and social care professions created a sense of mutual respect, understanding and appreciation. Working in interprofessional teams exposed students to diverse disciplinary knowing, being and doing, which in many cases, challenged mono-disciplinary thinking and reasoning. Working in interprofessional teams allows for deeper understanding and the development of inter-personal and teamwork skills, which in future, will assist them to function more effectively when entering the health care working environment.

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APPENDIXES

Appendix A_NWU-HREC Approval

Appendix B_NWU-GK-2019-022 RDGC Approval

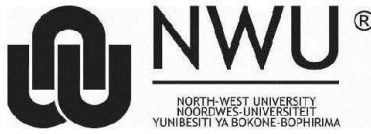
Appendix C_Informed Consent Form

Appendix D_Focus group interview schedule

Appendix E_End-of module reflection activity

Appendix F_SAJHE_author guidelines

Appendix A_NWU-HREC Approval



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18 June 2019

ETHICS APPROVAL LETTER OF STUDY

Based on approval by the North West University Health Research Ethics Committee (NWU-HREC) on 18/06/2019, the NWU Health Research Ethics Committee hereby approves your study as indicated below. This implies that the North-West University Research Ethics Regulatory Committee (NWU-RERC) grants its permission that, provided the special conditions specified below are met and pending any other authorisation that may be necessary, the study may be initiated, using the ethics number below.

Study title: Adopting a medium-impact blended learning design to address teaching- and learning related challenges in a large-group interprofessional teaching.																														
Study Leader/Supervisor (Principal Investigator)/Researcher: Y Heymans																														
Student: -																														
Ethics number:	<table border="1"><tr><td>N</td><td>W</td><td>U</td><td>-</td><td>0</td><td>0</td><td>0</td><td>1</td><td>4</td><td>-</td><td>1</td><td>9</td><td>-</td><td>A</td><td>1</td></tr><tr><td colspan="3">Institution</td><td colspan="3">Study Number</td><td colspan="3">Year</td><td colspan="3">Status</td></tr></table>			N	W	U	-	0	0	0	1	4	-	1	9	-	A	1	Institution			Study Number			Year			Status		
N	W	U	-	0	0	0	1	4	-	1	9	-	A	1																
Institution			Study Number			Year			Status																					
Status: S = Submission; R = Re-Submission; P = Provisional Authorisation; A = Authorisation																														
Application Type: Single Study																														
Commencement date: 18/06/2019																														
Expiry date: 30/06/2020																														
Risk: <table border="1"><tr><td>Minimal</td></tr></table>															Minimal															
Minimal																														
Approval of the study is initially provided for a year, after which continuation of the study is dependent on receipt and review of an annual (or as otherwise stipulated) monitoring report and the concomitant issuing of a letter of continuation.																														

Special in process conditions of the research for approval (if applicable):

General conditions:

While this ethics approval is subject to all declarations, undertakings and agreements incorporated and signed in the application form, the following general terms and conditions will apply:

- The study leader/supervisor (principle investigator)/researcher must report in the prescribed format to the NWU-HREC:
 - annually (or as otherwise requested) on the monitoring of the study, whereby a letter of continuation will be provided, and upon completion of the study; and
 - without any delay in case of any adverse event or incident (or any matter that interrupts sound ethical principles) during the course of the study.
- The approval applies strictly to the proposal as stipulated in the application form. Should any amendments to the proposal be deemed necessary during the course of the study, the study leader/researcher must apply for approval of these amendments at the NWU-HREC, prior to implementation. Should there be any deviations from the study proposal without the necessary approval of such amendments, the ethics approval is immediately and automatically forfeited.
- Annually a number of studies may be randomly selected for an external audit.
- The date of approval indicates the first date that the study may be started.
- In the interest of ethical responsibility the NWU-RERC and NWU-HREC reserves the right to:
 - request access to any information or data at any time during the course or after completion of the study;
 - to ask further questions, seek additional information, require further modification or monitor the conduct of your research or the informed consent process;
 - withdraw or postpone approval if:
 - any unethical principles or practices of the study are revealed or suspected;

- *it becomes apparent that any relevant information was withheld from the NWU-HREC or that information has been false or misrepresented;*
- *submission of the annual (or otherwise stipulated) monitoring report, the required amendments, or reporting of adverse events or incidents was not done in a timely manner and accurately; and / or*
- *new institutional rules, national legislation or international conventions deem it necessary.*
- NWU-HREC can be contacted for further information or any report templates via Ethics-HRECAppl@nwu.ac.za or 018 299 1206.

The NWU-HREC would like to remain at your service as scientist and researcher, and wishes you well with your study. Please do not hesitate to contact the NWU-HREC or the NWU-RERC for any further enquiries or requests for assistance.

Yours sincerely



Digitally signed by Wayne
Towers
Date: 2019.10.09
14:07:04 +02'00'

Prof Wayne Towers
Chairperson NWU Health Research Ethics Committee

Original details: (22351930) C:\Users\22351930\Desktop\ETHICS APPROVAL LETTER OF STUDY.docm
8 November 2018

Current details: (22351930) M:\DSS\18533\Monitoring and Reporting Cluster\Ethics\Certificates\Templates\Research Ethics Approval Letters\9.1.5.4.1 HREC Ethical Approval Letter.docm
3 December 2018

File reference: 9.1.5.4.2

Appendix B_NWU-GK-2019-022 RDGC Approval



Private Bag X6001, Potchefstroom
South Africa 2520

Tel: +2718 299-1111/2222

Web: <http://www.nwu.ac.za>

Research Data Gatekeeper Committee

NWU RDGC PERMISSION GRANTED / DENIED LETTER

Based on the documentation provided by the researcher specified below, on 09/05/2019 the NWU Research Data Gatekeeper Committee (NWU-RDGC) hereby grants permission for the specific project (as indicated below) to be conducted at the North-West University (NWU):

Project title: Adopting a medium-impact blended learning design to address teaching and learning related challenges in a large-group interprofessional teaching.

Project leader: Y Heymans

Researcher/Project Team: -

Ethics reference no: NWU-00014-19-S1

NWU RDGC reference no: NWU-GK-2019-022

Specific Conditions:

- The researcher is to appoint an independent mediator to invite prospective participants in her learning class to participate in the study.

Approval date: 09/05/2019

Expiry date: 08/05/2020

General Conditions of Approval:

- The NWU-RDGC will not take the responsibility to recruit research participants or to gather data on behalf of the researcher. This committee can therefore not guarantee the participation of our relevant stakeholders.
- Any changes to the research protocol within the permission period (for a maximum of 1 year) must be communicated to the NWU-RDGC. Failure to do so will lead to withdrawal of the permission.
- The NWU-RDGC should be provided with a report or document in which the results of said project are disseminated.

Please note that under no circumstances will any personal information of possible research subjects be provided to the researcher by the NWU RDGC. The NWU complies with the Promotion of Access to Information Act 2 of 2000 (PAIA) as well as the Protection of Personal Information Act 4 of 2013 (POPI). For an application to access such information please contact Ms Annamari De Kock (018 285 2771) for the relevant enquiry form or more information on how the NWU complies with PAIA and POPI.

The NWU RDGC would like to remain at your service as scientist and researcher, and wishes you well with your project. Please do not hesitate to contact the NWU RDGC for any further enquiries or requests for assistance.

Yours sincerely

Prof Mariene Verhoef

Chairperson NWU Research Data Gatekeeper Committee

Appendix C_Informed Consent Form



Private Bag X1290, Potchefstroom
South Africa 2520
Tel: +2718 299-1111/2222
Fax: +2718 299-4910
Web: <http://www.nwu.ac.za>



INFORMED CONSENT DOCUMENTATION FOR STUDENTS ENROLLED FOR THE MODULE WVGW 221

1 TITLE OF THE RESEARCH STUDY:

Adopting a medium-impact blended learning design to address teaching- and learning-related challenges in large-group interprofessional teaching

2 ETHICS REFERENCE NUMBERS: NWU-00014-19-S1

3 PRINCIPAL INVESTIGATOR (PI) / SUPERVISOR:

Prof G.M Reitsma

4 RESEARCHER:

Dr Yolande Heymans

5 ADDRESS:

Physical & Postal address		Work address
Physical address North-West University Potchefstroom Campus 11 Hoffman Street Potchefstroom 2531	Postal address North-West University Potchefstroom Campus Private Bag X6001 Potchefstroom 2520	Centre for Health Professions Education Building G16, Office 101 Internal box:35 Faculty of Health Sciences North-West University: Potchefstroom Campus

6 CONTACT NUMBER:

Work: 018 285 2224

7 REQUEST FOR INFORMED CONSENT

You are being invited to take part in a **research study** which aims to investigate how a medium-impact blended learning design can address challenges such as:

- limited student-to-student, student-to-lecturer, student-to-content engagement, and
- the difficulties experienced when facilitating interprofessional peer learning through group work and in a compulsory module within a large class setting.

Please take some time to read the information presented here, which will explain the details of this study. If you do not fully understand, please consult with your campuses' research support committee member (RSCM) to explain the research to you and to explain the part of this study that you do not fully understand.

It is very important that you are fully satisfied that you clearly understand what this research is about and how you might be involved. Also, your participation is **entirely voluntary** and you are free to say no to participate. If you say no, this will not affect you negatively in any way whatsoever. You are also free to withdraw from the study at any point, even if you do agree to take part now.

This study has been approved by the **Health Research Ethics Committee of the Faculty of Health Sciences of the North-West University (NWU): NWU-00014-19-S1**. The study will be conducted according to the ethical guidelines and principles of Ethics in Health Research: Principles, Processes and Structures (DoH, 2015) and other international ethical guidelines applicable to this study. If necessary, the research ethics committee members or other relevant people may inspect the research records.

This study has been approved by the **Research Data Gatekeeper Committee (RDGC) of the NWU (NWU-GK-2019-022)** and **final approval was granted by the NWU-HREC (NWU-00014-19-S1)** allowing this research to be conducted with registered students and staff members (lecturers) of the NWU.

7.1 What is this research all about?

The aim of this research is to explore how a medium-impact blended learning design in a compulsory module and large class setting can

- o limited student-to-student, student-to-lecturer, student-to-content engagement, and
- o the difficulties experienced when facilitating interprofessional peer learning through team-based group work and in a compulsory module, within a large class setting.

This study will be conducted during the second semester in 2019 and on all three campuses of the NWU. The motivation behind this research is to improve student learning by strengthening the practice of teaching and to contribute to the body of knowledge by sharing the findings on how a medium-impact blended learning design can enhance student engagement and interprofessional peer learning through team-based learning activities.

7.2 Who will be doing the research?

The researcher is the lecturers responsible for the teaching of WVGW 221 on the Potchefstroom Campus. She will be supported by a research support team. Narrative CV of each of the members are available on the WVGW 221 site on eFundi under the SoTL tab (Appendix P).

As a student, you are regarded as a vulnerable population as you are a captive audience in the classroom, and there is a power relation between you and the lecturer. Therefore the researcher will take special precautions to protect your rights during the research process. This includes using a research support team comprising of a research support committee member (RSCM), research administrators, a focus group interviewer and a field note taker. The research support team members are highly qualified in both teaching-learning as well as in conducting research and the research support team are also experienced researchers and trained in mixed-method research methodology, focus group interviewing using a semi-structured interview schedule, large class university teaching and blended learning. Only willing students (participants) who completed and signed this informed consent form and gave re-consent will be used. From the willing participants, voluntary sampling will be used for each data collection method until data saturation is reached.

The researcher will work closely with the research team during the research process however, no lecturers responsible for teaching WVGW 221 will be involved or present during the data-gathering phases and will have no access to any of your data until after the second semester lectures ends (1 November 2019) and the lecturers have no further role to play regarding your teaching and learning.

7.3 Why do we want YOU to participate?

As registered student for the module WVGW 221, we invite you to be part of this research because we see you as the most appropriate data source to tell us how you experience the teaching-learning strategies implemented in this module.

As you know we have advocated the intended research by requesting you via a posted announcement on the WVGW 221 site to:

- access the SoTL tab on the WVGW 221 site and to watch a short 2-minute explanatory video providing an overview of the intended WVGW221 SoTL research. The video covered the following topics: the background, purpose, aim, objectives, the data-gathering and analysis process, possible risks, benefits, compensation and safety related matters, anonymity, privacy and confidentiality, the ethics process and disclosure of research findings,
- familiarise yourself with the intended research by going through the research proposal, the accompanying appendixes as well as the informed consent form, and
- should you have any questions regarding the research, to contact your research support committee member (RSCM) on your campus. We also provided you with their contact details.

During the last 10 minutes of your first WVGW 221 contact session, your lecturer will introduce the RSCM and then leave the venue. After your lecturer left the venue, the respective RSCM will show the short 2-minute explanatory video again to make sure that you are adequately informed about the intended research. They will also address any question you might have.

The respective RSCM and CRA will then hand out a hard copy informed consent form and discuss the content of informed consent form with you. If you are not interested to participate in the research, you may leave the lecturing venue.

Should you be absolutely sure that they are willing to participating in the research, you can complete and sign the informed consent form in writing at this time. On leaving the venue, you will hand your informed consent to the respective RSCM or CRA, who will then sign the informed consent forms in your presence. Completed and signed informed consent forms will be placed in a box, sealed in front of the last student and kept in a safe place until the PRA will start to compile the participant list.

Should you need more time to think about participating in the research; and/or who want to contact the researcher and/or RSCM either telephonically, via electronic mail and/or in person regarding any uncertainties and/or questions you might have, you will have seven (7) days to do so. On receiving clarity and certainty you can complete and sign the hard copy informed consent form. After seven (7) days have passed the PRA will post an announcement on the VVVGW 221 site on eFundi reminding participants, who requested to complete the informed consent at a later stage, to please bring the written consent form to the contact session venue where the respective campuses' CRA will collect them and sign the informed consent in your presence. This informed consent forms will be safeguard with the other informed consent forms.

7.4 What will be expected of you?

The research information video as well as the supporting documentation uploaded onto eFundi and the researcher facilitated research information session provided a detailed outline of what will be expected of you.

All, but one, of the data generating activities which include:

- completing an **online student profile questionnaire** in your own time within the first 2 weeks of the second semester 2019 ($\pm$ 10 minutes),
- automated data generation when **working outside the classroom on eFundi throughout the second semester 2019**, and
- completing the **end of semester paper-based module reflection sheet** during the last 10 minutes of the last contact session for 2019 ($\pm$ 10 minutes),

are part of the students teaching, learning and assessment activities in the module and participation in the above mentioned teaching-learning activities is compulsory.

However, participation in the research by giving permission that your teaching and learning related data can be used for research purposes, is entirely voluntary. No student will be discriminated against for not participating. During the last contact session you will also be asked for re-consent to use your teaching and learning related data for research purposes.

Participation in a one (1) hour focus group interview towards the end of the 2nd semester and on a time and place that is convenient to you is not part of the structured teaching and learning activities and participation in the focus groups interview is entirely voluntary. No student will be discriminated against for not participating in a focus group interview. Should you be willing to participate in a focus group interview, the focus group facilitator will again request your re-consent prior to conducting the interview.

7.5 Will you gain anything from taking part in this research?

This research holds no indirect benefits and there is no financial compensation. However, by providing you, as a young health care professional in training, with different opportunities to voice your opinion, you can contribute to enhancing the quality of teaching and learning in the health care sector. This creates a sense of leadership, ownership and pride because you are helping to solve a challenge we are experiencing in health profession education. You will also assist health professions educators to gain a better understanding of how to enhance student engagement and peer learning when teaching a compulsory module within a large class setting.

7.6 Are there risks involved in you taking part in this research and what will be done to prevent them?

This research is deemed as medium risk for you as the student because:

Possible risks	What will be done to prevent them?
You may feel uncomfortable in allowing your data as provided in the student questionnaire (Phase 1) and the module reflection activity (Phase 3) be analysed for purposes other than for their learning activities in the module WVGW 221	You will not be forced in any way to give your consent and only if you agree to voluntary participation, your data will be included.
You may find completing the student profile questionnaire (Phase 1) and the module reflection activity (Phase 3) boring and time consuming	- The student profile questionnaire is developed using an online password protected platform and designed in such a way as to make the completion of the questionnaire as easy and user-friendly as possible. - The module reflection activity is also designed to be as short and user friendly as possible. You will not be forced to write more than you prefer to write when completing the reflection activity.
You may experience some discomfort when participating in the focus group interview that is digitally recorded	- The process of the focus group interview will be explained in detail to you before the focus group interview starts. - The focus group facilitator will explain the process of recording and making the recordings anonymous through the transcribing process, as well as explaining how and where the data will be safely stored. - You will be assigned a number and prior to the focus group interview, the focus group facilitator will request you to pin the card to you shirt on either side of your chest. - You will be reminded that you are allowed to leave the focus group discussion at any time and do not have to answer should you feel like it. - The process of the focus group interview will be explained in detail to you before the time.
The nature of focus group interview and as result the partial confidentiality thereof may discomfort you and you may experience anxiety when sharing your thoughts	- A short ice-breaker activity at the beginning of the focus group will help alleviate the feeling of strangeness and hopefully make you more comfortable to share your thoughts. - The focus group facilitator will in the beginning as well as at the end of the focus group interview (as part of the group rules) emphasise the importance of confidentiality. This will be stated by the interviewer during the activation and closing phases of the focus groups and is also indicated on the Informed consent forms.

	The facilitator will focus on making you as comfortable as possible and ensure that everyone is included in the discussions.
The researcher is also responsible for the teaching of WVGW 221.	The investigators will do everything in their power to ensure anonymity and confidentiality. The PRA will be responsible for cleaning the data and will remove any form of identification from the generated data. Satisfied that the data does not contain any identifiable information, the PRA will hand over the anonymised data to the PI when the data analysis phase commence and the lecturers have no further role to play regarding the teaching of the students.
You might feel compelled to participate and give positive feedback as you still want to pass the module WVGW 211	To minimise the power relation effect the informed consent will be done by an RSCM and CRA. Participants will be informed that all data sources will be anonymised and participants will be assigned a code. This implies that the lecturers will not be able to link any participant's feedback to a student.

There are more gains for you in joining this study than there are risks.

7.7 How will we protect your confidentiality and who will see your findings?

If you give your informed consent to participate in this research, we will do everything in our ability to ensure anonymity and confidentiality. This includes:

- the use of an research support team to conduct the research,
- the PRA will remove any identifiable information and assign a non-identifiable and unique code to each participant's data source,
- no lecturers responsible for teaching WVGW 221 will be present during any of the data-gathering activities,
- data analysis will only be done after the 2nd semester lectures end on 1 November 2019 and the lecturers have no further role to play regarding the students' teaching and learning.

Although the focus group facilitator will emphasise the importance of confidentiality in the beginning as well as at the end of the focus group interview, only partial confidentiality can be ensured as other students will hear what is shared during the focus group interview.

The PRA will be responsible for safe guarding and cleaning of the data. This means removing any identifiable information and assigning a non-identifiable and unique code to each data set and keeping hard copy data in a locked cupboard and eData on a password protected computer and file.

All focus group interviews will be erased from the digital voice recorders directly after transferring it to the PRA's password protected computer. After confirmation that the transcription work is satisfactory, the PRA will request the transcriber to return any data still in her possession and/or provide instructions to destroy any data still in her possession.

Lecturers will at no stage be present during any of the data-generated activities and will only have access to the cleaned data after the 2nd semester lectures end (1 November 2019) when the data

analysis phase commences and the lecturers have no further role to play regarding the students teaching, learning and assessment.

During data-analysis all cleaned eData will be kept safe on the researchers' password protected computers. A monitoring report will be submitted to the NWU-HREC and they may inspect the research records on request.

7.8 What will happen with the findings of this SoTL research?

We ask for your broad consent. This implies that we would like to use the data generated from this study for other and/or future teaching, learning and assessment related studies where the focus is on investigating student engagement and interprofessional peer learning through team-based learning activities within a blended design. Dr Heymans, the researcher in this research, received the FAIMER-SAFRI fellowship for the period 2019-2020. Conducting a research project is part of the FAIMER-SAFRI fellowship. Objective 2 from this research study will also be used for the SAFRI research project. For this reason the SAFRI supervisor is part of the research team on this specific part of the research.

The use of the participant's data from this study in any future teaching, learning and assessment related studies where the focus is on investigating student engagement and interprofessional peer learning through team-based learning activities within a blended design, the study will be subjected to a full ethics application, review and approval by the NWU-HREC, who will stand in on your behalf.

7.9 How, where and for how long will your data be stored?

After the data analysis,

- all hard copy datasets will be stored for a period of five (5) years in a locked cabinet within the Centre for Health Professions Education (CHPE) at the North-West University (Potchefstroom Campus),
- eData will be stored for a period of five (5) years on the PRA's password protected computer within the Centre for Health Professions Education (CHPE) at the North-West University (Potchefstroom Campus).
- The PRA will be the only person with access to the locked cabinet and the password protected eData.

After five (5) years any hard copy data sets as well as the password protected eData will be destroyed according to the North-West University's rules and regulation for data / record management. Hard copy data will be shredded by the PI in the presence of a member of the research support team and/or a member of the ethics committee and eData will be destroyed by the IT department of the NWU in the presence of the PI and/or a member of the ethics committee.

7.10 How will you know about the results of this research?

After the final analysis and report writing are complete, students will be invited to an information session. A notice will be placed at the entrance(s) of the School of Human Movement Sciences, Psychosocial Health, Physiology, Nutrition and Consumer Sciences and Pharmacy. The notice will invite 2019 WVGW 221 students who participated in the research to attend an information session where the results of the study will be shared with students who attend the information session by means of a PowerPoint presentation. Please note that attending the information session is not compulsory.

The results will also be shared with the academic community and the aim is to publish the findings in peer reviewed journals, and if accepted share the findings at the NWU Teaching and Learning conference, as well as a Health Education conference in oral, poster, and/or workshop format.

7.11 Will you be paid to take part in this study and are there any costs for you?

This study is funded by the NWU's Scholarship of Teaching and Learning grant and there is no financial compensation for participating in this study, however, light refreshments will be served during the focus group interview. Should you partake in this study, there will be no costs involved for you.

7.12 Is there anything else that you should know or do?

Should you have any questions or encounter any problem regarding the research, please contact your respective campus' research support committee member (RSCM) who will deal with the matter accordingly.

They are:

Campus	Mafikeng	Potchefstroom	Vaal Triangle
Name	Ms Mianda Erasmus	Dr Jessica Pool: Dr Dirk van den Berg:	Dr Marieta Jansen van Vuuren
Contact details	Ms Mianda Erasmus Office: Ipelegeng Centre, Room 1.1 Building E8, Office 104 Tel: 018 389 2334 Email: mianda.erasmus@nwu.ac.za	Dr Jessica Pool Office: Building E8, Office 104 Tel: 018 299 2717 Email: jessica.pool@nwu.ac.za Dr Dirk van den Berg Office: Building F1, Office 142 Tel: 018 299 2717 Email: Dirk.VanDenBerg@nwu.ac.za	Dr Marieta Jansen van Vuuren Office: Building 13, Split Level 3 -- Room SL312 Tel: 016 910 3319 Email: marieta.jansenvanvuuren@nwu.ac.za

You can also contact the Health Research Ethics Committee via Mrs Carolien van Zyl at 018 299 1206 or carolien.vanzyl@nwu.ac.za if you have any concerns that were not answered about the research or if you have complaints about the research.

A copy of the proposal, appendixes accompanying the proposal as well as the informed consent form will be uploaded onto the WVGW 221 site on eFundi under the tab SoTL research. Should you wish to have a copy of your own signed informed consent form, please contact me Paula Jardim at paula.jardim@nwu.ac.za.

8 DECLARATION BY PARTICIPANT

By signing below, I _____ Student number: _____
(please insert Name, Surname)

- agree to take part in the research study titled: **Adopting a medium-impact blended learning design to address teaching- and learning-related challenges in large-group interprofessional teaching**, and
- agree that, although I know that I have to partake in the activities listed below as they are part of the teaching and learning related activities in this module, I give permission that my information generated from these teaching and learning related activities may be, after being anonymised, used **for research purposes**.

Activity	Please mark with an X	
Online student profile questionnaire	YES	NO
Automated teaching and learning data when working on eFundi	YES	NO
End of semester written reflection on teaching elements used in this module	YES	NO
I am willing to participate in a focus group interview should the time, date and place suit me	YES	NO

- agree to giving broad consent. This implies that that my data may be used in future teaching, learning and assessment research related studies where the focus is on investigating student engagement and interprofessional peer learning through team-based learning activities within a blended design, but only after it has been subjected to a full ethics application, review and approval by the NWU-HREC, who will stand in on my behalf.

I declare that

- I have read this information / it was explained to me by a trusted person in a language with which I am fluent and comfortable.
- The research was clearly explained to me.
- I have had a chance to ask questions to both the person getting the consent from me, as well as the researcher and all my questions have been answered.
- I understand that taking part in this study is **voluntary** and I have not been pressurised to take part.
- I may choose to leave the study at any time and will not be handled in a negative way if I choose to do so.

Signed at (place)on (date) 2019.

.....
Signature of participant

9 Declaration by independent person obtaining consent

I (name).....declare that:

- I clearly and in detail explained the information in this document to the WVGW 221 students on the _____ Campus of the NWU.
- I did not use an interpreter.
- I encouraged the WVGW 221 students to ask questions and took adequate time to answer them.
- I am satisfied that the students adequately understands all aspects of the research, as discussed above
- I gave the students time to discuss it with others if they wished to do so.

Signed at (place) on (date) 20....

.....
Signature of independent person obtaining consent
.....

10 Declaration by researcher

I (name) declare that:

- I explained the information in this document to the independent person who obtained the informed consent.
- I did not use an interpreter.
- I was also available to answer any further questions.
- The informed consent was obtained by an independent person.
- I am satisfied that the person obtaining the informed consent adequately understands all aspects of the research, as described above.
- I am satisfied that the independent person had time to discuss the research with others if he/she wished to do so.

Signed at (place) on (date) 20....

.....
Signature of researcher

Current details: (23239522) G:\My Drive\9. Research and Postgraduate Education\9.1.5.6 Forms\HREC\9.1.5.6_HREC_ICF_Template_Apr2018.docm
25 April 2019
File reference: 9.1.5.6

Appendix D_Focus group interview schedule

Appendix D_Semi-structured interview schedule for focus group interviews with students

1 Research title:

Adopting a medium-impact blended learning design to address teaching- and learning-related challenges in large-group interprofessional teaching.

2 Qualitative interview introduction

Length: 45-60 minutes

Primary goal: To see things the way you see them... more like a conversation with a focus on your experience, your opinions and what you think or feel about the topics covered.

3 Instructions to the focus group facilitator and trained research assistant:

As participants arrive at the venue please:

- (a) introduce yourself,
- (b) thank the participants for their willingness and donating their time to participate in the research,
- (c) invite participants to help themselves to a light snack,
- (d) indicate where the restrooms are, and
- (e) ask the participants to write their assigned number on the given name tag.

4 Once everyone has arrived, please start with a short description outlining:

- (f) the aim and objectives of the research:
The research question posed is: "How can a medium-impact blended learning design, using a Team-based Learning approach, address the challenges related to large class teaching and learning in an interprofessional compulsory module setting?"
- (g) Specific objectives for this study include:
 - Objective 1: To examine how a medium-impact blended learning design can enhance student-to-student, student-to-lecturer and student-to-content engagement, and
 - Objective 2: To explore how a medium-impact blended learning design can enhance interprofessional collaborative learning through Team-based Learning activities.
- (h) the relevance of the research,
- (i) how each participant's contribution will make a difference and that each participant brings a unique and valuable viewpoint to the discussion,
- (j) what the focus group process will entail and how long the interview will take,
- (k) confirm that the lecturers (the PI and/or Co-I) will not know who consented to participate, and that all data will be anonymised before the lecturers (as investigators/researchers) receives the transcribed interview after the second semester lectures end (1 November 2019) and the data analysis starts,
- (l) that due to the nature of focus groups, only partial confidentiality can be ensured (Botma et al., 2014),

- (l) that participation is voluntary at all times, that participant may choose not to respond and could withdraw from the interview at any time without any consequences,
- (m) group rules to ensure that the interview is conducted in an orderly manner,
- (n) as part of the group rules, emphasise the importance of confidentiality,
- (o) the use of the digital voice recorders for the purpose of transcription. Participants are requested to verbally confirm consent for recordings. Also explain that all recordings will be transcribed verbatim by a transcriber who is not involved in the teaching of the module WVGW 221 and that the transcriber signed a confidentiality agreement. To ensure anonymity, the data will be cleaned by removing any identifiable information. The focus group facilitator will also ask a participant from each of the focus group interview to validate the transcribed interview as a true and honest version of the semi-structured focus group interview before it will be made available to the PI.
- (p) address any questions and/or uncertainties.

5 Reconsent

Address the matter of consent and reconsent with the participants:

You indicated in the informed consent form that you are willing to participate in the semi-structured focus group interview.

- Would you still like to participate in this interview?
- Do you reaffirm your willingness to participate and give your reconsent?

If yes, continue with the interview. If no, the candidate will be requested to leave the room.

6 Conducting the focus group interview using a semi-structured interview schedule

During each focus group please make use of a combination of communication techniques such as minimal verbal responses, paraphrasing, probing, reflection and clarification in order to follow up interesting possibilities surfacing during the interview (Botma et al., 2014). Table 5 in the protocol provided a detailed explanation on how the focus group interview will be conducted (§5.6.3).

7 Semi-structured interview schedule

- Objective 1: To examine how a medium-impact blended learning design can enhance student-to-student, student-to-lecturer and student-to-content engagement, and
- Objective 2: To explore how a medium-impact blended learning design can enhance interprofessional collaborative learning through Team-based Learning activities.

To reach these objectives the following research sub-questions will guide the research:

- Sub-question 1: What are the experiences of students regarding student-to-student, student-to-lecturer and student-to-content engagement in a medium-impact blended design? (Objective 1), and
- Sub-question 2: How does a medium-impact blended design enhance interprofessional collaborative learning in a large class setting? (Objective 2).

Semi-structured interview Schedule

1. Pedagogical approach

1.1 What do you think is the responsibilities of a student in the teaching and learning process?

1.2 What do you think is the responsibility of the lecturer in the teaching and learning process?

2. eLearning environment

2.1 What are your thoughts regarding the use of eLearning environment in this module?

2.2 How do you experience the eLearning environment?

2.3 How does the eLearning environment influence your learning?

2.4 The content is available online (on eFund!) with Voice-over PowerPoints explaining the content that you need to prepare prior to the contact session. How do you feel about this approach to teaching and learning?

3. Interprofessional peer learning

3.1 How do you experience learning from and with your peers from other disciplines in this module?

3.2 How was your experience of working in class in your interprofessional small group different from other group work experiences?

3.3 How would you say the in-class focused application tasks (FATs) contributed to your learning?

Appendix D_Semi-structured interview schedule for focus group interviews with students

3

4. Engagement

4.1 Why do you think it is desirable for students to be actively engaged in the learning process?

4.2 What strategies do you think the lecturers used to actively engage you during the semester? How do you feel about this?

4.3 Why do you think some students choose not to be engaged?

4.4 How would you describe the student-lecturer engagement in this module?

4.5 What do you think can be done to enhance student engagement in this module?

5. Assessment

5.1 A variety of assessment methods is used in this module e.g. self-assessment, group work activities, peer-assessment, tests and exams. They were done online, in-class and in an examination venue. How did you experience the assessment in this module?

6. Learning environment

6.1 How would you describe your overall teaching and learning and assessment experience in this module? Would you say this approach is valuable? Please elaborate.

6.2 If you could imagine an ideal learning environment (online and face-to-face), what would that look like?

7. Personalised learning

7.1 Where do you think the majority of your learning in this module took place? Please elaborate.

Appendix D_Semi-structured interview schedule for focus group interviews with students

4

7.2 What competencies /capabilities /soft skills did this approach to teaching, learning and assessment in this module develop and/or enhance?

7.3 How would you say the competencies /capabilities /soft skills you developed and/or enhanced in this module contributes to your development as a health professional? Please elaborate.

8. Any other suggestions or comments you would like to note?

Appendix E_End-of module reflection activity

Appendix E_End- of module reflection activity

PART 1 / DEEL 1: STUDENT INFORMATION / STUDENT INLIGTING

After receiving your mark part 1 will be removed by the PRA to ensure your anonymity / Nadat jy jou punt ontvang het, sal deel 1 verwyder word deur die PRA om jou anonimiteit te beskerm.

Surname	
Name	
Student number: / Studente nommer	

DO NOT TEAR THIS PART OFF / MOET NIE HIERDIE DEEL AFSKEUR NIE



PART 2 / DEEL 2: WVGW LAST CONTACT SESSION MODULE REFLECTION / LAASTE KONTAKSESSIE MODULE REFLEKSIE

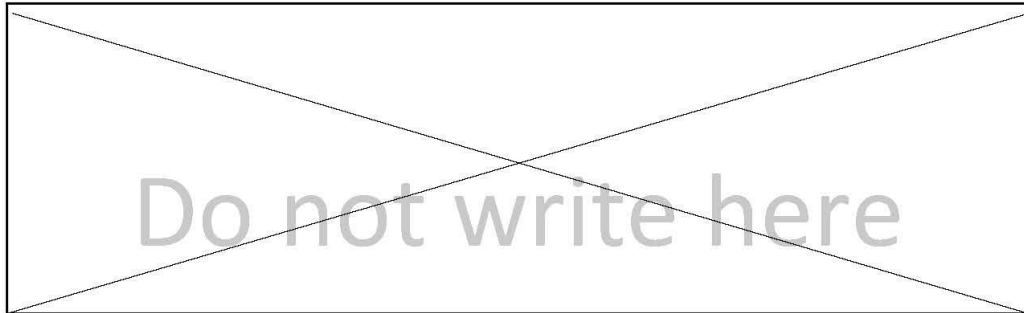
Dear student As communicated to you in the beginning of the semester, we have revised the teaching and learning approach in WVGW 221 from the traditional class room approach used¹ to the flipped classroom approach in 2019². We would greatly appreciate your voice in evaluating this change. Please reflect on your experience of the WVGW 221 module by writing some notes for us on the topics listed below. Please be honest – your feedback is very valuable. Things to consider: • Was it valuable? • Was it "user friendly"? • What worked well? • What do we need to change? Why?	Beste student Soos ons aan die begin van die semester aan julle gekommunikeer, het ons die onderrig en leer benadering in WVGW 221 van die tradisionele wyse¹ na die "omgekeerde" klasbenadering hersien in 2019². Ons sal baie graag jou stem wil hoor in die evaluering van hierdie verandering. Reflekteer asb. op jou ervaring van die WVGW 221 module deur vir ons 'n paar notas oor die temas hieronder gelys te skryf. Wees asb. eerlik – jou terugvoer gaan baie waardevol wees. Aspekte om te oorweeg: • Was dit waardevol? • Was dit "gebruikersvriendelik"? • Wat het goed gewerk? • Wat moet ons verander? Hoekom?
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Topics/ Temas:

1. How did you experience the **individual readiness assurance test (iRAT) & team readiness assurance test (tRAT)** in the beginning of class? Please elaborate. / **Hoe het jy die "individual readiness assurance test (iRAT) & team readiness assurance test (tRAT)" aan die begin van klas ervaar? Brei asb uit.**

¹ 1) A lecturer-centred approach, 2) the double period is used for an in-class lecture using PowerPoints, and 3) one large practical task with 20 students per group that needs to be submitted at the end of the semester / 1) Dosent-gesentreerde benadering, 2) die dubbel periode word gebruik vir 'n lesings met PowerPoint, en 3) een groot praktiese taak met 20 studente per groep wat aan die einde van die semester ingedien moet word.

² 1) A student-centred approach, 2) learning material with voice over explanations is available on-line, and 3) a shorter 1 hour practical session where in-class time is used for interprofessional peer learning in groups with 5-6 members from different disciplines / 1) 'n student-gesentreerde benadering, 2) leermateriaal met verduideliking van die inhoud is elektronies beskikbaar, en 3) 'n korter 1-uur praktiese sessie waarin-klastyd gebruik word vir interprofessionele portuurteer in groepe van 5-6 lede uit verskillende dissiplines.



2. How did you experience the eLearning environment on eFundi. Please elaborate / *Hoe het jy die eLeeromgewing op eFundi ervaar? Brei asb uit.*
3. What was your experience of a) the learning content on eFundi with b) the voice-overs providing more information / *Wat was jou ervaring van a) die leerinhoud op eFundi met b) die stemopnames wat meer inligting gee?*
4. How did you experience the interprofessional peer learning in your small group? Please elaborate. / *Hoe het jy die interprofessionele portuurleer in jou klein groep ervaar? Brei asb uit.*

5. Please elaborate on the effectiveness of communication through the use of Announcements on eFundi & WhatsApp / Brei asb uit oor die *effektiviteit van die kommunikasie deur gebruik te maak van "Announcements" op eFundi en WhatsApp*.

6. How did you experience the in-class focused application tasks (FATs)? Please elaborate. / Hoe het jy die in-klas gefokusde toepassingsaktiwiteite ervaar? Brei asb uit.

7. Think of the pre-session work, the pre-session self-assessment, the iAT, iRAT, tRAT and the FAT. In which of these elements did the most of your learning take place? Please motivate why you say this. / Dink aan die pre-sessie werk, die pre-sessie self-assessering, die iAT, iRAT, tRAT en die FAT. In watter van die elemente dink jy het die meeste van jou leer plaasgevind? Motiveer asb hoekom jy so sê.

8. Any other suggestions or comments (remember this is anonymous) / Enige ander voorstelle of kommentaar (onthou dit is anoniem).

Appendix F_SAJHE_author guidelines

Online Submissions

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Registration and login are required to submit items online and to check the status of current submissions.

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2. The submission file is in a Microsoft Word 2007 or later file format. (Submissions not conforming to the journal's style will be rejected)
3. Where available, URLs for the references have been provided.
4. The text is 1.5-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed in the article text and clearly marked. The article should be between 5500 and 7500 words in length. References: The **Chicago Manual of Style** author-date system is used. That is, references are cited in the text by the author(s) name(s), the year of publication and the page numbers(s) in brackets, for example, (Apollonia 1973, 370), as a key to the full list of all references that appears at the end of the article. The list of references should include every work cited in the text. Ensure that dates, spelling and titles used in the text are accurate and consistent with those listed in the references.
5. **When citing others' work, always use double quotation marks for the citation, and, if required, use single quotation marks within the citation. This expecially applies to indented quotations. Turnitin does not recognise indentations with quataction marks, instead, it recognises indented quoted text without quotation marks as previously used work that appears elsewhere** (thus - picks this up as plagiarism).
6. The instructions in Ensuring a Blind Review have been followed, and all author details have been removed from the initial review copy.
7. The article has been professionally edited and a letter from the editor will be attached to it (step 4 of submission process - Uploading Supplementary Files)

Submission Preparation Checklist

As part of the submission process, authors are required to check off their submission's compliance with all of the following items, and submissions may be returned to authors that do not adhere to these guidelines.

1. The submission has not been previously published, nor is it before another journal for consideration and is the author(s) own original work.
2. The submission file is in a Microsoft Word 2007 or later file format. (Submissions not conforming to the journal's style will be rejected)
3. Where available, URLs for the references have been provided.
4. The text is 1.5-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed in the article text and clearly marked. The article should be between 5500 and 7500 words in length. References: The Chicago Manual of Style author-date system is used. That is, references are cited in the text by the author(s) name(s), the year of publication and the page numbers(s) in brackets, for example, (Apollonia 1973, 370), as a key to the full list of all references that appears at the end of the article. The list of references should include every work cited in the text. Ensure that dates, spelling and titles used in the text are accurate and consistent with those listed in the references. **Please take note that quotes must be done with double quootation mark - as Turnitin picks this up as plagiarism.**
5. The instructions in **Ensuring a Blind Review** have been followed, and all author details have been removed from the initial review copy.
6. The article has been professionally edited and a letter from the editor will be attached to it (step 4 of submission process - Uploading Supplementary Files)

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