

Exploring the development of collaboration amongst undergraduate
physiotherapy students at the University of the Western Cape

By

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Abstract

Background: Healthcare workers are the human face of health systems, serving to connect knowledge and service delivery to improve patient care. The development of core competencies in the education of health professionals is fundamental for health improvement. Interprofessional collaboration amongst healthcare workers has been linked to improved patient outcomes as no single professional can address all healthcare issues.

Aim: The aim of this research was to determine how UWC undergraduate physiotherapy students were being prepared for collaborative work as part of their professional development. Educational experiences of the third- and final-year physiotherapy cohort, physiotherapy educators' perspectives on the development of competency for collaboration and a review of physiotherapy module outlines were explored.

Research Method: A descriptive qualitative research design utilizing focus groups, semi-structured interviews and document analysis was employed. A pedagogical framework was used for instrument development and data analysis. The pedagogical framework was adapted from the CanMEDS physician competency framework, the core competency framework by the Medical and Dental Board of the Health Professions Council of South Africa and the Essential Competency Profile for physiotherapists in Canada. Research was conducted at the Department of Physiotherapy at the University of the Western Cape. Purposive sampling was undertaken with the sample population having consisted of six third- and six final-year physiotherapy students for the focus

group discussions and seven lecturers formed the sample for the semi-structured interviews as well as sixteen physiotherapy module outlines. Data was collected and focus group discussion and interviews were transcribed verbatim. An inductive content analysis of the transcribed data was conducted and compared to the Pedagogical framework. Content analyses of module outlines were conducted drawing on Biggs work on constructive alignment and compared to the Pedagogical framework. Ethical clearance was received from the Senate Research Committee of the University of the Western Cape.

Results: Participants showed a keen knowledge on the importance of collaboration in the teaching and clinical environment. It had relevance for personal development and learning as well as for interprofessional collaboration. Interprofessional education and group work were thought to be instrumental in collaborative learning but a lack of congruency of learning activities could be a barrier to learning. The clinical environment was highlighted as beneficial to developing collaboration through interprofessional observation and interaction but high patient loads and a lack of understanding of the roles and responsibilities of all healthcare professionals were identified as barriers. To a lesser degree, communication, conflict management and confidence were identifiable skills physiotherapy students should have to be effective collaborators.

Conclusion: Students are well-positioned to participate within interprofessional team but have inadequately developed collaborative competencies. These include interprofessional role understanding and skills in conflict management, confidence and communication. Constructive alignment of curriculum by aligning learning outcomes and learning activities to develop collaboration including interprofessional learning activities would better prepare students for interprofessional collaboration.



Declaration

I declare that “*Exploring the development of collaboration amongst undergraduate Physiotherapy students at the University of the Western Cape*” is my own work, that it has not been submitted for any degree or examination in any university, and that all sources I have used or quoted have been indicated and acknowledged by complete references.



Signed: _____

Janine Manilall

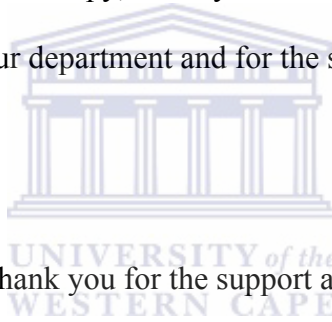
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Key Words

Physiotherapy

Core competencies

Collaboration

Graduate attributes

Curriculum

Healthcare

Health professionals

Education

Collaborative learning

Communication



Abbreviations

CL	Collaborative learning
CHS	Community & Health Sciences
HPCSA	Health Professions Council of South Africa
IP	Interprofessional
IPE	Interprofessional education
IPEC	Interprofessional Expert Collaborative
MDT	Multidisciplinary team
MDB	Medical and Dental Board
NPAG	National Physiotherapy Advisory Group
OT	Occupational Therapy
PT	Physiotherapy
UET	Undergraduate Education and Training
UWC	University of the Western Cape
WCPT	World Confederation of Physical Therapy
WHO	World Health Organisation

Definition of terms

- Collaboration - the ability of healthcare workers to work in an interdependent, multi-disciplinary team towards effective, safe and optimal patient-centered care (Frank et al., 2014; MDB, 2014; NPAG, 2009).
- Competency - a combination of measurable knowledge, abilities, skills and values that are necessary for clinical practice (NPAG, 2009; WHO, 2013)
- Enabling competency - specific behaviours, skills and attitudes
- Interprofessional teamwork - “The levels of cooperation, coordination and collaboration characterizing the relationships between professions in delivering patient-centered care.” (IPEC, 2011. Pg2.)
- Interprofessional education - “When students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes” (WHO, 2010)



Transprofessional-

Instances when a healthcare provider takes on a role that is normally outside of his/her usual scope of practice but for which he/she does have the necessary base of expertise and teams up with the patient and/or family to provide care.”



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Chapter One: Introduction

1.1. Background

With the exception of sub-Saharan Africa, which continues to struggle with high mortality and reduced life expectancy (Chen et al., 2004; Michaud, Murray & Bloom, 2001;), advances in healthcare over the last century are evident in the doubling of life expectancy for the majority of the global population. However, health systems are under pressure to meet the challenges that globalization, the emergence of new infections, an increase in chronic disease, poverty and inequity place on them, regardless of the advances achieved (Frenk et al., 2010; Labrante, Mohindra & Schrecker, 2010). The health workforce is one of six building blocks countries need if they want universal, equitable health services (WHO, 2013). With the healthcare needs of the world changing, new sustainable but dynamic approaches are necessary if we are to improve health outcomes (Fried, Piot, Frenk, Flahault & Parker, 2012).

One of these approaches may be to develop a range of core competencies as part of health professionals education (Chen et al., 2004; Crosbie et al., 2002; Frenk et al., 2010) by aligning professional competencies to global health needs (Frenk et al., 2010). Competencies in health have been defined as a combination of measurable knowledge, abilities, skills and values that are necessary for clinical practice (National Physiotherapy Advisory Group (NPAG), 2009; WHO, 2013) that could be developed through education (Chen et al., 2004). The development of competencies enables a solid

grounding for standards of practice and the provision of high quality service delivery (Frank, Snell & Sherbino, 2014; Suter et al., 2009; WHO, n.d).

The Medical and Dental Professions Boards (MDB) is one of the regulatory boards on the Health Professions Council of South Africa (HPCSA). In 2011 the Undergraduate Education and Training (UET) subcommittee of the MDB decided to embrace the finding of the Report by Frenk et al. (2010) who advocated for change in health professions education (van Heerden, 2013). In June 2011, the UET made a decision to adapt the CanMEDS physician competency framework (Frank et al., 2014) for undergraduate education and training of health professionals for the South African and African context (van Heerden, 2013). The MDB (2014) identified the Roles of Health Practitioner, Communicator, Collaborator, Leader and Manager, Health Advocate, Scholar and Professional as significant, and included the key competencies associated with developing each of these roles. Each Role has been defined by a set of key competencies which outline the behaviours, skills and attitudes that are the enabling competencies that graduates should display (Queens University, School of medicine, n.d.). The role of *collaborator* in health was further defined as “...*healthcare professionals working effectively within a team to achieve optimal patient or client care*” (MDB, 2014, pg. 7).

Collaboration in healthcare has been found to produce positive health outcomes for patients (Interprofessional Expert Collaborative¹ (IPEC), 2011; Suter et al., 2012), as no single discipline can meet all patient needs (Suter et al., 2009). Hence, there is a need to move away from professional silos and to work interdependently in a multidisciplinary team (Frenk et al., 2010; WHO Guidelines, 2013). Frank et al. (2014) emphasized the need for collaboration as essential for safe, high quality patient care.

Collaboration involves healthcare workers understanding each other's roles and responsibilities, sharing knowledge, and working together in an interdependent team (Frank et al., 2014; IPEC, 2011; WCPT Guidelines, 2007) and communication with each other as well as the patients, their families and communities (IPEC, 2011; Suter et al., 2009). The MDB (2014) identified the following key competencies for the development of the role of collaborator: a) the ability to participate effectively and appropriately in multicultural, interprofessional² and transprofessional³ teams as well as teams in other contexts (the community included), b) the ability to work effectively with other healthcare professionals to promote positive relationships and prevent, negotiate and resolve interpersonal conflict.

1 Interprofessional Education Collaborative Expert Panel included two members of each of the following organisations: American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Pharmacy, American Dental Education Association, Association of American Medical Colleges, and Association of Schools of Public Health.

2 Interprofessional teams defined as “instances when the knowledge and expertise of care providers from different professions, including the knowledge and expertise of the patient and/or family, are integrated together, decision-making is shared and the team sets common goals of care using an interdependent collaborative approach.”

3 Transprofessional teams defined as “instances when a healthcare provider takes on a role that is normally outside of his/her usual scope of practice but for which he/she does have the necessary base of expertise and teams up with the patient and/or family to provide care.”

Healthcare systems influence healthcare education as they impact on the types of graduates that institutions should be seeking to produce and the challenges these graduates will encounter upon entering the health system (Higgs, Hunt, Higgs & Neubauer, 2009). Education provides the foundation for the development of any profession with training institutes bearing the primary responsibility for the development of core competencies (IPEC, 2011). But professional healthcare education has not kept pace in meeting the demands of struggling health systems (Frenk et al., 2010; WHO, 2013). According to Frenk et al. (2010), professional education is struggling due to:

...mismatch of competencies to patient and population needs, poor team work, persistent gender stratification of professional status, narrow technical focus without broader contextual understanding; episodic encounters rather than continuous care; predominant hospital orientation at the expense of primary care; quantitative and qualitative imbalances in the professional labor market; and weak leadership to improve health system performance. (Frenk et al., 2010, pg. 1923)

Senkibuge, Modisenyane & Bishaw (2014) agreed with Frenk et al., (2010) and emphasised that educational reforms are necessary to produce graduates with professional competencies. Frenk et al. (2010) recommended educating healthcare professionals who are competent to mobilise knowledge, engage in critical thinking and ethical conduct, and to serve in patient and population-centred health systems both locally and globally.

No clear framework exists for defining how healthcare education can develop or assess competency in collaboration. One example that may be applicable to the development of competency in collaboration is provided by Kelland et al. (2014) who look at the role of Advocate (NPAG, 2009), an essential competency in physiotherapy. Kelland et al. (2014) sought to identify attributes to excel in the role of Advocate and suggested by identifying and measuring performance key attributes, it provided understanding on the development of competence in advocacy. The development of these key attributes, are the qualities necessary to be competent in performing a role (Kelland et al., 2014). Dhillon et al. (2010) found that rather than formal education, competence in advocacy amongst occupational therapy students was developed through observation, experience and reflective practice and could be relevant to the development of collaboration. One recommendation by WHO (2013) was to implement interprofessional education (IPE) of healthcare professionals in order to promote development in collaborative practice. The rationale on which competencies should be taught and developed is still ongoing, but an agreement exists that a significant type of competency needed by all health professionals is the capacity to collaborate across professional boundaries (WHO guidelines, 2013).

Collaboration is not only important in multidisciplinary clinical teams, but has also been identified as one of the generic skills that all University of the Western Cape (UWC) graduates should possess (UWC, 2009). UWC graduates should be able to work “in collaboration with others, in a way that is informed by openness, curiosity and a desire to meet new challenges.”(UWC, 2009:1). This research would therefore potentially be relevant in curricular modifications for other departments in the faculty as well, since the

competency of collaboration has been highlighted as having importance for all health professional students in the faculty.

The requisite to develop professional competencies in healthcare education is clearly emphasised. These competencies were deemed necessary as health systems globally are under stress to meet the demands placed on them. One of the competencies to improve patient outcome is collaboration amongst healthcare workers. Collaboration requires healthcare professionals to work interdependently, moving away from professional silos, if they are to deliver safe, high quality patient care and is understood to be a competency that all healthcare professionals should develop for interprofessional care.



1.2. Problem Statement

Collaboration amongst healthcare workers is instrumental for improved patient outcomes in terms of efficient service delivery and reduced cost of patient care (Frank et al., 2014; Suter et al., 2009). Key competencies and enabling competencies have been identified for the development of collaboration (Frank et al., 2014; MDB, 2014; NPAG, 2009) but no frameworks on how to develop these competencies were identified. This study explored how students and educators perceived the development of collaborative skills in the UWC physiotherapy department and its implementation in the curriculum. The findings of this study could appraise curriculum on the training of physiotherapists at UWC, thereby producing graduates competent to collaborate.

1.3. Aim

The aim of this study was to determine how UWC undergraduate physiotherapy students were being prepared for collaborative work as part of their professional development.

1.4. Objectives

The objectives of this study were:

1. To determine the extent to which the physiotherapy curriculum emphasised and operationalised the development of collaboration.
2. To determine the educational experiences of undergraduate third and final year physiotherapy students in the context of collaborative work.
3. To explore physiotherapy educators' perspectives on the development of collaborative competency among physiotherapy students

1.5. Summary

In summary, health systems, as well as the healthcare workers involved in them, are under stress to meet the demands placed on them with healthcare. The development of core competencies in healthcare education has been recommended as one way to address this issue. Among the core competencies noted for improved health outcomes is the role of the collaborator, as no single healthcare discipline can meet all patients' needs. This study explored how collaboration was being developed in healthcare education, particularly in physiotherapy. It sought to do this by looking at the perceptions of

students and educators related to the development of collaboration in the UWC physiotherapy department. The outcomes of this study would provide the institution and department with feedback and recommendations on which learning opportunities may promote the development of collaborative competencies and any inclusions or amendments to the curriculum that might be necessary to more effectively develop collaborative competency among students.

1.6. Outline of other chapters

This thesis consists of an additional five chapters to chapter one. Chapter two presents the literature as it relates the study. The literature review outlines the state of healthcare systems and the healthcare workers driving the need for developing professional core competencies. The pedagogical framework of the study in the context of collaboration is defined. The chapter proceeds to review the collaboration and education in terms of graduate attributes, collaborative learning and the impact on healthcare as well as associated collaborative learning activities towards its development.

Chapter three introduces the research methodology utilised. It presents the research design and setting. The research sample, instrument design, data collection and data analysis for each study objective is explained in detail. The chapter concludes with trustworthiness strategies and ethics consideration.

Chapter four presents the results of the research. The characteristics of each sample group are outlined followed by an outline of the themes. The themes included are: participants understanding of collaboration, the importance of collaboration, the development of collaboration, skills necessary for effective collaboration, assessment, alignment of the curriculum and challenges to developing collaboration. Each theme has subthemes that are presented in greater detail.

Chapter five commences by discussing the importance of collaboration and its significance to student learning. Learning activities associated with the development of collaboration is expounded followed through with a discussion on multidisciplinary teamwork and role understanding. The chapter concludes with a discussion on skills for collaboration and learning outcomes related to collaboration.



Chapter six concludes the thesis. A summary is presented and includes the significance and limitations this thesis. Recommendations to improve the development of collaboration among physiotherapy students are made as well as suggestions for future research.

Chapter Two: Literature review

2.1. Introduction

A literature search of the following databases was undertaken: EbscoHost, Medline, Cinahl, Google Scholar, SAGE journals online, Science Direct, PsychArticles and Health Source: Nursing/Academic edition. The key words used for the search included: healthcare systems, healthcare professionals, education, competencies, physiotherapy, collaboration, graduate attributes, interprofessional education and collaborative learning. The reference lists of the retrieved articles were also searched for additional studies that contained any of the key words. The literature review presents the challenges facing healthcare workers and the health systems they service, and then explains the need to develop competency in the role of collaborator as well as the specific key competencies associated with this role. Education is a means to develop competency in collaboration commencing in the undergraduate studies of healthcare professionals. This chapter also presents collaborative learning as a means to develop competence in collaboration and which activities promote its development. Developing collaboration is also linked to interprofessional education and the development of graduate attributes.

2.2. Healthcare workers and health systems

Strong vibrant health systems are essential for healthy populations and are impossible without healthcare workers who are the driving force behind service delivery (Chen et al., 2004; Travis, Bennett, Haines et al., 2004). However, Frenk et al. (2010) have claimed that health education has not kept pace with the changing context of health, and that healthcare workers are increasingly ill-equipped to manage patient populations in the 21st century. Globally we are confronted by health systems that are inadequate and ill-equipped to deal with current and future health needs of the population in terms of sustained prevention and chronic care (Fried et al., 2012). There are concerns that a weak response to the increase in the burden of disease has left healthcare workers overburdened with increased workloads (global shortages of workers, migration from poorer to richer areas and maldistribution of resources), higher exposure to infectious diseases (poor work environments) and poor morale (Chen et al., 2004).

A weak knowledge base, together with skill imbalances also contribute to healthcare workers being poorly prepared to deal with the current global health challenges (Chen et al., 2004). Frenk et al. (2010) reported the need for professional education to enhance the education of health professionals through the development of core competencies and attributes. Their report recommended that the development of core competencies should be based on transnational, multiprofessional, and long-term outlooks to address the needs of individuals and populations (Frenk et al., 2010). Frenk et al. (2010) also

stressed the use of educational approaches to prepare students for effective, collaborative work within interconnected groups.

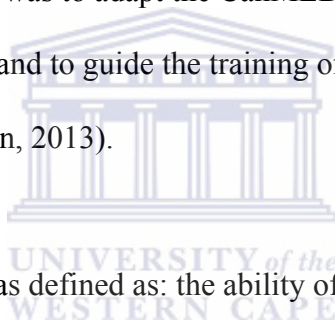
2.3. Collaboration as a competency: Pedagogical framework

Collaboration as a competency was incorporated into the CanMEDS physician competency framework, which was developed to enhance patient care by improving physician training (Frank et al., 2014). This framework was evidence-based, needs-driven and outcome measured as it incorporated over 2 500 comments from clinicians, educators and expert volunteers from over 14 countries and was developed using a combination of focus groups, interviews and literature reviews (Frank et al., 2014). The CanMEDS framework has since been adopted by countries on five continents including the Medical and Dental Board of the HPCSA (MDB, 2014), the National Physiotherapy Advisory Group from Canada (NPAG, 2009) and the Physiotherapy boards of Australia and New Zealand (2015).

The Essential Competency Profile for Canadian physiotherapists was adapted from the CanMEDS framework as it was found to be *“evidence-based, needs-driven and outcome- measured, and considerable research efforts have been made towards its development and implementation...and [the framework] uses a common language that is shared across other healthcare professions, which supports interprofessional collaboration initiatives”* (NPAG, 2009, pg. 4). The Profile was developed to provide

guidance to Canadian physiotherapists on competencies to be developed over time (NPAG, 2009).

Following the report by Frenk et al. (2010), the strategic committee of the MDB decided on five-key elements to be incorporated into the undergraduate education of medical and dental students (Van Heerden, 2013). These elements incorporated the development of competency-driven instructional design as well as developing the graduates' ability to engage in interprofessional activities (Van Heerden, 2013). One of the strategies towards developing these elements was to adapt the CanMEDS competency framework within the South African context and to guide the training of undergraduate healthcare professionals (Van Heerden, 2013).



The role of collaborator was defined as: the ability of healthcare workers to work in an interdependent, multidisciplinary team towards effective, safe and optimal patient-centered care (Frank et al., 2014; MDB, 2014; NPAG, 2009). Healthcare workers - including physiotherapists - need to develop key competencies and enabling competencies for the role of collaboration (Frank et al., 2014; MDB, 2014; NPAG, 2009). Presented in table 1 is the pedagogical framework of the study, an amalgamation of the CanMEDS framework (Frank et al., 2014), the MDB (2014) competency profile and the essential competency profile for physiotherapists (NPAG, 2009). More

specifically, it represents the key and enabling competencies⁴ for the role of collaborators (NPAG, 2009; MDB, 2014; Frank et al., 2014).

Table 1 Pedagogical framework of Collaborator

Key competency	Enabling Competency
1. Establishes and maintains interprofessional relationships, which foster effective client-centred collaboration.	<ul style="list-style-type: none"> i. Respecting and understanding the roles and responsibilities of other healthcare professionals towards patient-centred care ii. Fostering collaboration with relevant other stakeholders in patient care (NPAG, 2009; MDB, 2014; Frank et al., 2014)
2. Collaborates with others to prevent, manage and resolve conflict	<ul style="list-style-type: none"> i. Identifying issues that may result in conflict and employing collaborative skills to resolve them i. Demonstrate a respectful attitude towards colleagues and the interprofessional team in order to foster positive relationships (NPAG, 2009; MDB, 2014; Frank et al., 2014) ii. Reflect on improving the functioning of the interprofessional team (MDB, 2014)
3. Effectively and safely transferring care to another health professional (Frank et al., 2014)	<ul style="list-style-type: none"> i. Being able to assess when the patient should be transferred to another healthcare provider ii. Demonstrating the use of written and verbal communication for safe transfer (Frank et al., 2014)

The IPEC (2011) shared the same vision as Frenk et al. (2014), which was for healthcare workers to deliver safe, accessible and high quality patient-centered care but from an

⁴
Enabling competencies are specific behaviours, skills and attitudes

interprofessional practice perspective. The IPEC (2011) report focused on the learning process of healthcare professionals to develop core competencies in order to collaborate within interprofessional teams. Their report (IPEC, 2011) listed four domains that contributed towards developing interprofessional collaborative practice: values and ethics, roles and responsibilities, communication and teamwork. These domains overlap with the competency outlines presented in Table 1 (NPAG, 2009; MDB, 2014; Frank et al., 2014) and are supported by Suter et al. (2009) who also suggest that the development of understanding, appreciation and communication is necessary to collaborate within healthcare teams.

Healthcare professionals working in collaboration result in improved patient health outcomes (Anand & Bärnighausen, 2011; Frenk et al., 2010; WHO Guidelines, 2013). The key competencies and enabling competencies towards developing the role of collaborator are outlined by Frank et al. (2014). The addition of the MDB (2014) and that of the NPAG (2009), provides an outline that is specific to the South African context as well as discipline specific respectively. The merging of the competency outline for the role of Collaborator by CanMEDS (Frank et al., 2014), MDB (2014) and NPAG (2009) provided the Pedagogical framework for the development of instruments.

2.4. Education

2.4.1. Graduate attributes

An increasing trend in higher education is to develop within new graduates a set of generic graduate attributes that go beyond discipline-specific knowledge and skills. In the context of UWC, these characteristics are known as the graduate attributes (UWC, 2009).

In a knowledge-driven world where there is a rapid pace of organizational and technological change, university graduates are expected to be prolific and industrious members of society and in their occupations (Griesel & Parker, 2009; Yorke & Harvey, 2005). Graduate attributes have been defined by Barrie (2006) as "... the qualities, skills and understandings a university community agrees its students should develop during their time with the institution." Generic or graduate attributes articulate the role, purpose and accountability of institutions for higher education (Barrie, 2005; Barrie, 2006) but are independent of the discipline of the graduate.

Studies of graduate and generic attributes have highlighted the need for good communication and interpersonal skills (Barrie, 2005; Griesel & Parker, 2009; Yorke & Harvey, 2005). Communication and interpersonal skills have been highlighted as being important for interdisciplinary teamwork and the development of competency in collaboration (Frank et al., 2014; Gum et al., 2013; IPEC, 2011; Suter et al., 2009). Communication skills in the form of written text and the ability to engage with others

have also been strongly emphasized (Barrie, 2005; Griesel & Parker, 2009; Yorke & Harvey, 2005). The ability to work effectively and flexibly in a team was also found to be a skill that is desired by employers (Yorke & Harvey, 2005).

The UWC's Charter of Graduate Attributes charter (2009) was created as a result of an institutional audit that highlighted the lack of this component of the curriculum when considered alongside Higher Education Institutions internationally. In order to achieve the top tier attributes of scholarship, critical citizenship and the social good and lifelong learning, UWC graduates must also develop six overarching skills and abilities, including collaboration. Being a skilled communicator and possessing interpersonal flexibility overlap with the key competencies necessary for healthcare workers in the 21st century (Frenk et al., 2010; IPEC, 2011). Furthermore, Frenk et al. (2010) stated that medical education reforms were associated with lifelong learning, critical inquiry and enlightened professionalism through socialization into professional values, attitudes, and behaviours. UWC incorporates these aspects in their graduate attributes charter (2009) hence producing healthcare graduates for the 21st century.

2.4.2. Collaborative learning

To produce healthcare workers with competence in collaboration, one needs to look at how this is developed as part of the undergraduate curriculum by identifying which activities are likely to promote it. When engaging in collaborative activities, partners work together, sharing a common goal (Dillenbourg, 1999; Hammer-Chiriac, 2014).

Collaborative activities are further characterized by symmetry, low division of labour, synchronous communication, negotiability between partners and the degree to which interactions influences understanding and cognitive processes (Dillenbourg, 1999; Hammer-Chiriac, 2014; Lachman, Ponzer, Johansson, Benson & Karlgren, 2013).

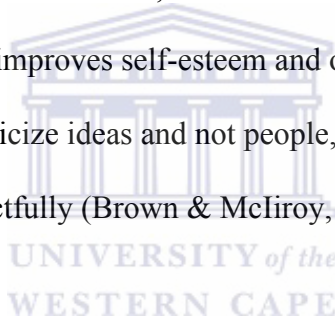
Within collaborative interactions, partners value the contributions of members, drawing on the skills of each other to meet common goals (Hammer-Chiriac, 2014; Roberts, 2005) and at the same time, being negotiable to constructive criticism while maintaining mutual respect (Dillenbourg, 1999; Hammer-Chiriac, 2014; Roberts, 2005). Co-

operative learning on the other hand is usually characterized by partners, who may even be sitting in a “group”, dividing the task and working on it individually, then combining their contributions to form a joint product (Dillenbourg, 1999; Hammer-Chiriac, 2014).

Collaborative learning (CL), defined by Dillenbourg (1999, 1) as “...a situation in which two or more people learn or attempt to learn something” incorporates collaborative activities that may develop competency in collaboration.

Collaborative learning promotes academic achievement (Hammer-Chiriac, 2013; Roberts 2005), collaborative activities (Hammer-Chiriac, 2013; Roberts, 2005) and psychosocial benefits (Roberts, 2005). From an academic perspective collaborative

learning fosters critical thinking, active involvement of students in their learning, improved academic results and appropriate problem solving (Gokhale, 1995; Hammer-Chiriac, 2013; Hynchak & Batty, 2012; Roberts, 2005). These are achieved when students work interactively to clarify or share ideas through discussion and debate, thereby being involved in their own learning processes. (Gokhale, 1995; Hammer-Chiriac, 2013; Roberts, 2005). Furthermore, collaborative learning influences the performance of weaker students when grouped with higher achieving students by providing opportunities to learn from their peers (Brown & McIlroy, 2011; Roberts, 2005). From the psychosocial benefits, collaborative learning improves understanding of diverse perspectives; it improves self-esteem and oral communication as well as demonstrating ways to criticize ideas and not people, creating opportunities for students to negotiate conflict respectfully (Brown & McIlroy, 2011; Hammer-Chiriac, 2014; Hynchak & Batty, 2012).



2.4.3. What does collaborative learning mean for healthcare?

Teamwork amongst healthcare professionals results in improved patient outcomes in terms of quality, safety and service delivery (Anand & Bärnighausen, 2011; Frenk et al., 2010; Suter et al., 2012). Healthcare professionals need to move away from professional silos (Frenk et al., 2010) and engage in collaborative practice.

Collaborative learning through IPE promotes understanding and knowledge of the differing roles and responsibilities amongst healthcare professionals (Doucet, Buchanan,

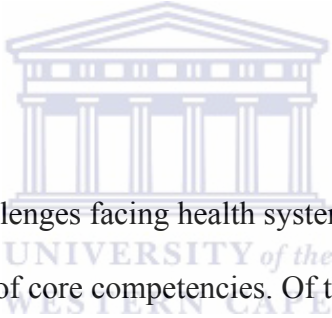
Cole & McCoy, 2013; Nisbeth, Hendry, Rolls & Field, 2008; O'Carroll, Braid, Ker & Jackson, 2012) including understanding of one's own professional identity within interprofessional (IP) teams (Mellor, Cottrell & Moran, 2013; Sheldon et al., 2012). Students are able to gain insight and access to diverse perspectives on healthcare issues including increased knowledge and the importance of teamwork in healthcare (Mellor et al., 2013; Nisbeth et al., 2008), creating IP awareness and fostering respect (Doucet et al., 2013). Furthermore IPE improved communication skills, allowing students to express themselves within IP groups (Mellor et al., 2013; O'Carroll et al., 2012) and manage conflicting perspectives (Mellor et al., 2013).

2.4.4. Learning activities to develop collaboration

Case-based learning in IP groups (Newton, Wood & Nasmith, 2012; Verma, Medves, Paterson & Patteson, 2006) and team-based learning, a distinct form of CL (Michaelsen & Sweet, 2008) were highlighted as collaborative learning activities. Multidisciplinary ward meetings (Nisbeth et al., 2008), IP student-led discussions (Nisbeth et al., 2008) and group learning activities (Verma et al., 2006) have all been shown to be beneficial learning activities that aim to develop collaboration skills. Collaborative learning in IPE can occur in the classroom through group activities or in the clinical setting (Ernstzen, Statham & Hanekom, 2014; Pollard, 2008). In the clinical setting collaboration can be developed amongst students by observing how healthcare professionals interact with each other (Nisbeth et al., 2008; Pollard, 2008) and through experience in clinical practice (Pollard, 2008; Ros & Hilton, 2001).

Collaborative learning opportunities amongst health professional students outside their profession would better prepare them for interprofessional communication and therefore towards safer and improved healthcare (IPEC, 2011). In addition to the role of collaboration in the clinical context, there is also a need to better understand the development of collaborative skills in higher education because as part of its reforms, higher learning institutions should “*promote interprofessional and transprofessional education that breaks down professional silos while enhancing collaborative and non-hierarchical relationships*” (Frenk et al., 2010, pg. 1924).

2.5. Summary



This chapter states the challenges facing health systems and the need for healthcare education to develop a set of core competencies. Of the seven core competencies highlighted as being important for health professionals, the role of collaborator was explored in some depth. When health professionals collaborate, it results in improved outcomes for patients by promoting overall health and wellness, disease prevention and providing comprehensive health services through duration of disease (IPEC, 2011). The collaborator framework by CanMEDS, MDB and NPAG (Table 1.) provided the pedagogical framework for the study.

The researcher also looked at how education could develop collaboration. A clear differentiation was made between collaboration and cooperation so these terms were not

confused. The literature supports collaborative learning as an educational method to develop collaboration as it promotes collaborative activities as well as academic achievement and has psychosocial benefits. Collaboration could be developed through collaborative learning activities such as case-based learning and team-based learning in the classroom and in the clinical setting, through observation and experience.

Interprofessional education is a means for healthcare professionals to collaborate in teams, moving away from professional silos. It was also determined that IPE improves role understanding and responsibilities, teamwork and improves awareness and respect.

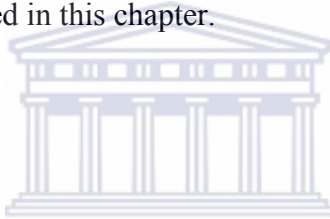
The next chapter reports on the research methods employed in this study.



Chapter Three: Research Methodology

3.1. Introduction

This chapter presents the research methodology for the study. It describes the qualitative descriptive research design and research setting of the UWC physiotherapy department. It then proceeds to outline the sample size and sample approach in more detail. The rationale for instrument design and the instrumentation are described. Data collection methods and data analysis are articulated in greater detail with each of the methodology processes outlined per study objective for clarity. Trustworthiness and ethical considerations are presented in this chapter.



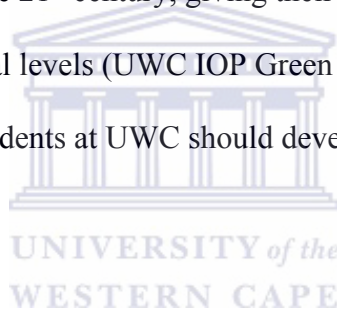
3.2. Research Design

This study used a qualitative descriptive design to explore the development of collaborative competency in physiotherapy undergraduate education. Descriptive designs yield rich data that would be of interest to policy makers and educators (Spector, Merrill, Elen & Bishop, 2014). This design enabled the researcher to gain a deeper understanding of social phenomena (Kemparag & Chavan, 2005; McMillan, 2010). The use of focus group discussions and semi structured interview are qualitative methods that provided an in-depth interpretative understanding, as well as insights into the experiences and perspectives of the students and staff in the study (Kemparag & Chavan 2005; McMillan, 2010). The flexibility of this method allowed for elaboration of concepts and the serendipitous discovery of relevant information (Gill, Stewart, Treasure & Chadwick, 2008; Kemparag & Chavan, 2005).

3.3. Research Setting

The Department of Physiotherapy at UWC is one of eight universities that offer a four year undergraduate, Bachelor of Science degree in physiotherapy. The physiotherapy degree integrates classroom and clinical teaching environments in its academic program, with third and final year of training being clinically intensive. The UWC undergraduate physiotherapy curriculum is guided by the WCPT guidelines (2011). The university also offers postgraduate degree programs in Masters in Science and Ph.D. level students.

UWC is committed to promoting an academic environment that prepares its graduates for the rapid changes of the 21st century, giving their students the ability to engage at both local and international levels (UWC IOP Green paper 2015- 2019). Among the graduate attributes that students at UWC should develop, is the ability to collaborate (UWC, 2009).



3.4. Research Sample

This section describes the research sample for each objective of the study. It firstly presents the source documents assembled for document analysis and the data to be extracted. It follows on to describe the focus group participants sampling approach and those of the semi-structured interviews.

3.4.1. Objective 1: To determine the extent to which the current curriculum emphasises and operationalizes the development of collaboration

The module guides of physiotherapy modules were the source for document analysis as it gave a clearer understanding for opportunities for the development of collaboration amongst physiotherapy students in this department. The department of physiotherapy provided the module outlines for review. These were the most updated module provided to the researcher and were outlines being utilised for the 2015 academic year. The information in the module guides included content covered, learning outcomes, teaching and learning activities, assessment tasks and evaluation of the learning and teaching activities of each module in the undergraduate program. Each module also included a descriptor on how the UWC graduate attributes were integrated in association with the learning outcomes. Of the eighteen modules received from the physiotherapy department, two were omitted as they were postgraduate modules.

3.4.2. Objective 2: To determine the educational experiences of undergraduate third and final year physiotherapy students in the context of collaborative work

Focus groups were targeted at the undergraduate physiotherapy students from the third (n=48) and fourth year (n=55). All students from both cohorts were informed of the thesis and were invited to participate in the discussions through lectures in the physiotherapy department. Purposive sampling of students based on academic performance (students from high and low performance areas) and socio-economic demographics (students from high and low socio-economic backgrounds) involved the final selection of the focus group participants. This sampling method reduces generalisability and ensures a diverse range of participants in the discussions (Barbour, 2001).



3.4.3. Objective 3: To explore physiotherapy educators' perspectives on the development of collaborative competency among physiotherapy students

The physiotherapy department comprises of eleven permanent and contract staff and includes all levels of academics: Associate professors (n=2), Senior Lecturers (n=3), Lecturers (n=3) and Associate Lecturers (n=3). Lecturers in physiotherapy are involved with teaching undergraduate and postgraduate students. Teaching includes lectures and practical application of physiotherapy techniques in the classroom, as well as being involved in clinical supervision of students in clinical placements. The structured interview targeted all levels of permanent and contract lecturers in the undergraduate physiotherapy program at UWC.

3.5. Instrument Design

Instrument design is explained in relation to the objectives of the study. Presented is the document analysis module outline map. The Pedagogical framework informed focus group discussion questions and that of semi-structured interview questions.

3.5.1. Objective 1: To determine the extent to which the current curriculum emphasises and operationalises the development of collaboration

Content analysis is a means to accurately represent written documents (Bowen, 2009; Olsen, 2012). For this study, content analysis of the module guides in the physiotherapy curriculum was carried out to determine the alignment of the curriculum as it relates to the development of collaboration in the undergraduate students. In order to explore this; a document analysis sheet (Appendix 1) was developed in the context of the pedagogical framework – (see page 15) (Frank et al., 2014; MDB, 2014; NPAG, 2009). The analysis sheet sought to depict which modules developed collaboration specifically the relation to key and enabling competencies as per the pedagogical framework. The instrument also demonstrated when and how collaboration was developed as well as assessment strategies related to them. Content analysis of the modules sought to explore congruency between curriculum, students' views and the lecturers' views on how collaboration was being developed. Biggs' (2003) theory on constructive alignment was adopted to identify alignment of the physiotherapy curriculum around developing collaboration. Table 2 presents an abridged representation of the document analysis data sheet.

Table 2 Abridged document analysis sheet

Module	Learning outcomes related to collaboration	‘Activities’ to develop learning outcomes associated with collaboration	Assessment of the learning outcome associated to collaboration	‘Activities’ not associated with learning outcome

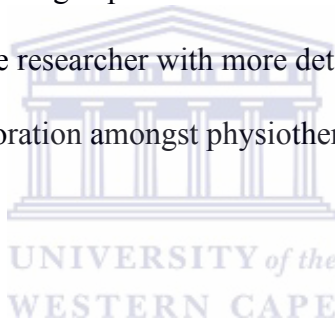
3.5.2. Objective 2: To determine the educational experiences of undergraduate third and final year physiotherapy students in the context of collaborative work

To understand the educational experiences of undergraduate third and final year students, their perceptions on their development in collaboration were explored through focus group discussions (Kitzinger, 1995). It was anticipated that feedback from students would be useful to determine students' current experiences of learning tasks that aimed to develop collaboration, as well as being beneficial for potential future developments in teaching curricula towards developing a deep learning approach (Biggs, 1999; Biggs, 2003) towards collaboration.

The Pedagogical Framework (Frank et al., 2014; MDB, 2014; NPAG, 2009) provided a guideline that informed the focus group discussions as well as for the analysis of the outcomes. Focus group questions (Appendix 2) explored students’ perceptions on their understanding of collaboration including the relevance of developing this competency from theoretical and practical learning opportunities in clinical and lecture settings.

3.5.3. Objective 3: To explore physiotherapy educators' perspectives on the development of collaborative competency among physiotherapy students

Semi-structured interviews included questions that defined the subject to be explored but also allowed for flexibility to explore new ideas to gain more information from participants (Gill et al., 2008). Semi-structured interviews (Appendix 3) incorporated open-ended questions that aimed to explore educators' perceptions of how they developed collaboration among students, and also included gathering information on their qualifications and teaching experience. The observations and interpretations of the interview data provided the researcher with more detailed insight on how they perceived the development of collaboration amongst physiotherapy students at UWC.



3.6. Data collection

This section looks at the data collection process and is outlined in relation to the study objectives. Document analysis is outlined (objective 1), proceeded by data collection processes of the focus group discussions (objective 2) and semi-structured interviews (objective 3). The researcher used different sources to seek convergence and corroboration on the development of collaboration among undergraduate physiotherapy students (Bowen, 2009).

3.6.1. Objective 1: To determine the extent to which the current curriculum emphasises and operationalises the development of collaboration

Permission was obtained from the head of the department of physiotherapy to obtain all module outlines related to the research. Outlines of physiotherapy modules were provided by the Department of Physiotherapy for document analysis. These outlines were the most updated versions of the module guides that were used to guide teaching and learning activities within the department. The information that was extracted from these module guides included: Module names, the year the module is offered, learning outcomes associated with the development of collaboration, activities that develop learning outcomes associated with collaboration and the assessment of learning outcomes related to collaboration.



3.6.2. Objective 2: To determine the educational experiences of undergraduate third and final year physiotherapy students in the context of collaborative work

Permission was obtained from the head of the department of physiotherapy to approach third and final year students. Final year physiotherapy students had a three week theory block, which was preceded by two clinical practice blocks, in the second term from the 1st June 2015 to 19 June 2015. The fourth year focus group was conducted during the theory block as full attendance of students on campus was anticipated. Third year students attended two clinical practice blocks prior to the focus group discussion. All students were informed of the purpose of the study through an information sheet and

were invited to participate in the focus group discussions during lectures at the department of physiotherapy.

Third year (N=48) and fourth year (N=55) physiotherapy students were invited to participate with the intention of conducting purposive sampling. However, a poor response rate from students of both cohorts resulted in convenience sampling as the students represented in this study were the only individuals to consent to participation. Six students from the third year cohort and six from the final year cohort made up the sample size (N=12). Two focus group discussions comprised of six participants each were conducted. The focus group discussion that included fourth year students was conducted by the researcher on the 10 June 2015. The third year focus group discussion was conducted in the third term of the academic year by a research assistant on the 30 July 2015. Both focus group discussions were conducted in the UWC physiotherapy department, in a quiet room. Focus group discussions were recorded with an audio recorder and were transcribed verbatim. Completed transcripts were sent to all participants for clarification on the accuracy of the transcription.

3.6.3. Objective 3: To explore physiotherapy educators' perspectives on the development of collaborative competency among physiotherapy students

The head of the department of physiotherapy was approached to conduct semi-structured interviews among lecturers. An invitation to participate was emailed to all educators in the physiotherapy department and included an information sheet that clearly outlined the purpose of the research project. Follow-up phone calls were made to those lecturers who

did not respond to the email. There are eleven members of staff in the physiotherapy department of whom seven agreed to participate. Appointments were arranged with all respondents who agreed to participate in the interviews. Interviews were conducted either in person or telephonically by the researcher. One participant was contacted telephonically to clarify feedback. All interviews were recorded with an audio recorder and transcribed verbatim. Completed transcripts were sent to all participants for clarification on their accuracy.

3.7. Data Analysis

Data analysis is presented in detail in this section and is presented as objective one and a merged data analysis of objectives two and three. Across all objectives, data was analysed for themes which are unifying concepts or statements around a specific area of interest (Bradley, Curry & Devers, 2007).

3.7.1 Objective 1: To determine the extent to which the current curriculum emphasises and operationalises the development of collaboration

Module outlines in the physiotherapy curriculum were mapped using a data capture sheet (Appendix 1). The data was analysed for prevalence of facts regarding the development of collaboration and its comparison to the literature review on collaborative learning as well as to the key and enabling competencies of collaboration as identified in the Pedagogical Framework (Table 1. Pg. 15). The module outlines were analysed to identify if the learning outcomes were aligned with learning activities by drawing on

Biggs' (1999, 2003) work on constructive alignment. Assessment tasks were further analysed for alignment with learning outcomes that were related to the development of collaborative skills (Biggs, 1999; Biggs, 2003).

3.7.2 Objective 2: To determine the educational experiences of undergraduate third and final year physiotherapy students in the context of collaborative work

AND

Objective 3: To explore physiotherapy educators' perspectives on the development of collaborative competency among physiotherapy students

A transcriber was given all audio recordings and asked to transcribe them verbatim. All transcripts were analysed to determine accuracy of them and error amended. The transcripts were read through numerous times for familiarisation of the content as no insights or theories can be developed without this (Elo & Kyngäs, 2007).

The researcher used inductive content analysis a process that involves open coding, creation of categories and themes (Elo & Kyngäs, 2007). The participant's responses from focus group discussion and interview transcripts were openly coded to create categories, providing the researcher with a formal system to organise the data of each sample population (Bradley et al., 2007). Categories were then grouped under higher order heading based on their taxonomy within groups (Elo & Kyngäs, 2007).

Categories from both data group were compared to identify any links and relationships between each data group i.e. lecturers or students. The data was further analysed to

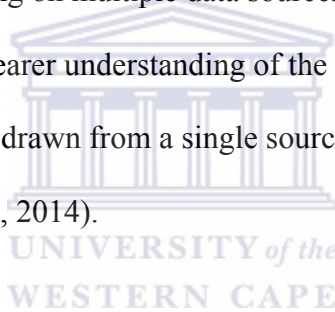
identify themes, compiling examples through direct quotations (Burnard, Gill, Stewart et al., 2008).

Themes identified from the data were analysed alongside the key concepts for collaboration as identified in the Pedagogical Framework (Frank et al., 2014; MDB, 2014; NPAG, 2009) and collaborative learning in the literature. The themes identified from document analysis, FGD and interviews were compared to provide a clearer understanding (Apesoa-Varano and Hinton, 2013) of the development of collaboration as a competency amongst undergraduate physiotherapy students at UWC.



3.8. Trustworthiness

The perspectives that both students and educators provided, as well as the document analysis, provided the researcher with deeper insight and understanding into the development of collaboration (Gill et al., 2008) within this particular physiotherapy department. By drawing on the human experience of students and lecturers, the truth value is subject-orientated and not demarcated by the researcher (Krefting, 1991). As the researcher was unfamiliar with participants in FGD and interviews, the truth value was less likely to be obscured by entangling personal experience with sample population (Krefting, 1991). By drawing on multiple data sources (FGD, semi-structured interviews & document analysis) a clearer understanding of the topic was created— meaning that conclusions were not only drawn from a single source, which had the effect of reducing bias (Kemperag & Chavan, 2014).

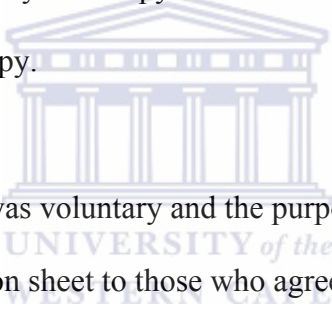


Decision procedures on the research process as well as field notes were accurately recorded in a research journal should an audit of the study be conducted and to observe any bias approaches. The descriptive approach of this research design provided direct quotations from the sample population and the use of audio recording allowed for a physical trace of the data that was collected (Cope, 2014) as well as a critical assessment of interpretation of data (Krefting, 1991). The analysis of data was done by the researcher and supervisor and an external independent researcher was also invited to audit the data and its interpretation. It is acknowledged that this data is representative of

a specific context – the UWC physiotherapy department – so care was taken not to extrapolate the findings to other departments and institutions.

3.9 Ethics consideration

Permission to conduct the study at The University of the Western Cape was obtained from the Registrar of the university, the Higher Degrees committee (Registration no: 15/4/34) and the Head of the Physiotherapy Department. Permission was obtained for: reviewing the module guides of the physiotherapy program; to conduct focus groups with third and fourth year physiotherapy students and interviews with lectures at the Department of Physiotherapy.



Participation in the study was voluntary and the purpose of the study was clearly outlined with an information sheet to those who agreed to participate (appendix 4). The aims, objectives and potential benefits of the research project were discussed, and written consent was obtained from all participants including getting permission to record the focus groups (appendix 5) and interviews (appendix 6). Participants of the focus group discussion were asked not to discuss the content of the focus group discussion and were asked to sign a confidentiality binding form (appendix 7). Respondents of the sample groups were made aware of their right to withdraw from the interview or focus groups or have their data excluded from study without fear of reprisal or victimisation. All information collected remained confidential and data was password protected on a computer that only the researcher had access.

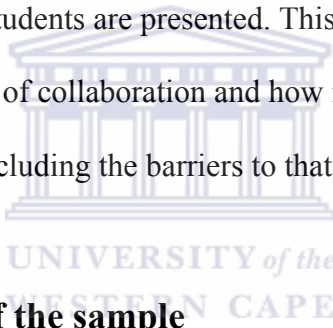
3.10 Summary

This chapter discussed the research methodology. A qualitative descriptive design was carried out using document analysis, focus group discussions and semi –structured interviews for data collection. The UWC physiotherapy department provided the setting to conduct data collection. Six students each from the third and fourth year cohorts made up the sample (n=12) for the focus group discussions, sharing their views on how they felt they were being developed to collaborate. A total of seven lecturers shared their perspectives on how they believed that collaboration was being developed, through the use of semi-structured interviews. Sixteen physiotherapy module outlines were analysed, extracting learning outcomes, activities and assessments that were related to the development of collaboration. Issues around ethics including consent and confidentiality were carefully considered. Data was analysed using inductive content analysis. The next chapter presents the results of the study.

Chapter Four: Results

4.1. Introduction

This chapter presents the findings of how UWC undergraduate physiotherapy students are being prepared for collaborative work as part of their professional development. It reports on the learning outcomes related to collaboration, as described in the physiotherapy curriculum. The results also express the perceptions of the undergraduate physiotherapy students on their educational experiences in the context of collaborative work. Finally, the perspectives of lecturers on how they develop collaborative competency among their students are presented. This chapter therefore presents the participants understanding of collaboration and how it is currently developed in the physiotherapy program, including the barriers to that development.



4.2. Characteristics of the sample

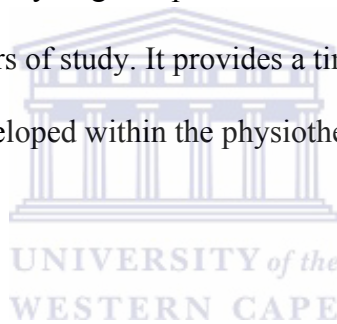
4.2.1. Physiotherapy curriculum outline

There were eighteen physiotherapy module outlines provided by the department for analysis and two were omitted as they were postgraduate modules. Of the module outlines, none represented an updated for the 2015 academic year, as reflected in Table 3.

Table 3 Age analysis of Modules

Module Update	2015	2014	2013	Unknown	Total
Number	Nil	11	3	2	16

The majority of physiotherapy-specific theory modules are covered in the second (N=5) and third (N=5) years of study. Figure 1 presents the distribution of physiotherapy modules over the four years of study. It provides a timetable to refer to regarding when collaboration is being developed within the physiotherapy curriculum.



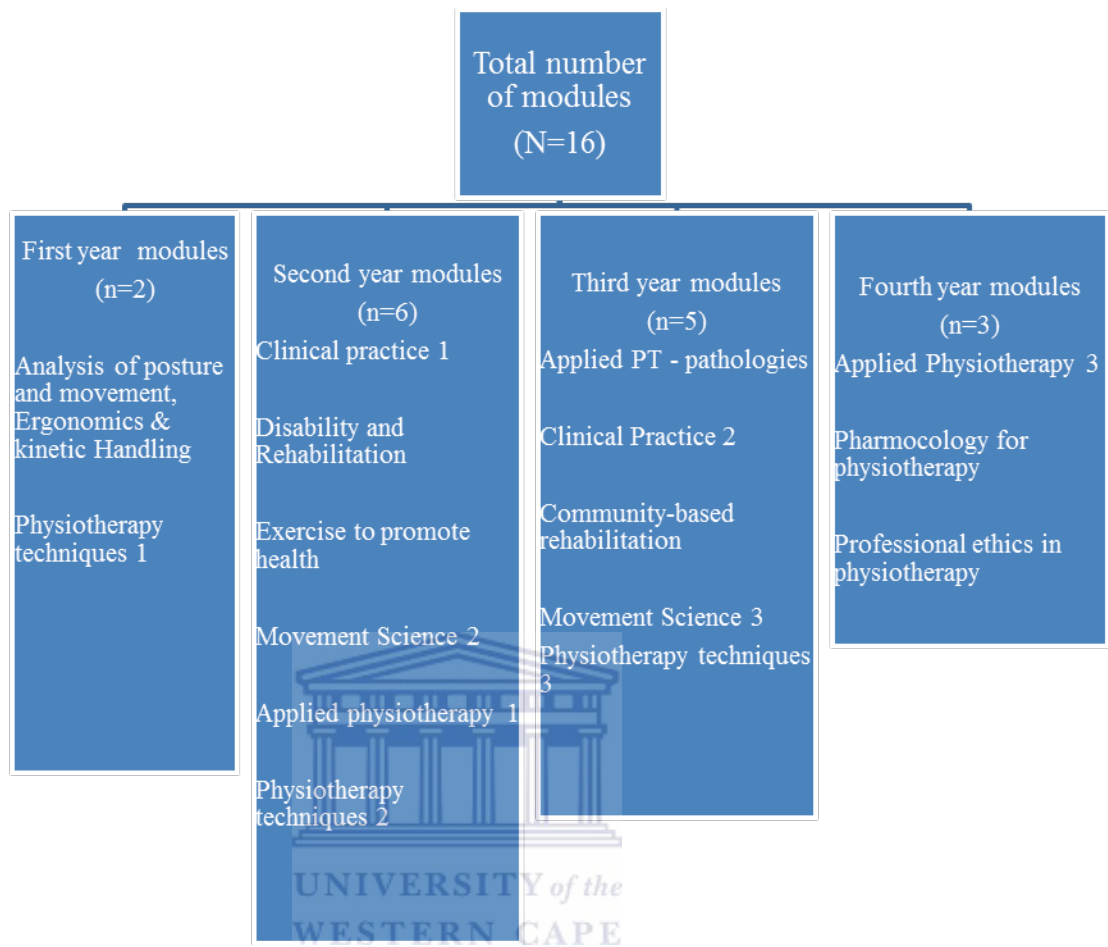


Figure 1 Distribution of Modules

4.2.2. Participants of Focus Group Discussion (undergraduate students)

The focus group participants included third year (N=6) and fourth year (N=6) undergraduate physiotherapy students. The third year FGD was conducted by a research assistant in the third term and the fourth year FGD was conducted by the researcher during the theory block in the second term. Students' learning environments included classroom-based lectures on campus and clinical rotations in a variety of placements in the Western Cape. In their third year, the students had four clinical placements, each of which was five weeks long, and the fourth year students had five clinical placements that were five or six weeks long.

4.2.3. Interview participants (Lecturers)

Eleven lecturers were invited to participate of whom seven agreed having represented all level of academia from the physiotherapy department (Table 3.). The participants' experience in physiotherapy education included teaching theoretical content in the classroom as well as clinical supervision on students' rotations. One participant had been involved in clinical supervision for ten years prior to her recruitment in the department as a lecturer. Their experience as qualified physiotherapists and in physiotherapy education is outlined in Table 4.

Table 4 Demographics of interview participants

Participant	Level of staff member at UWC Physiotherapy Department	No. of years as a qualified physiotherapist	No. of years involved in PT education
1	Associate Professor	27	15
2	Senior Lecturer	23	11
3	Senior Lecturer	17	9
4	Lecturer	11	3
5	Associate Lecturer	23	11
6	Associate Lecturer	3	1
7	Associate Lecturer	10	4
	Average (years)	16	8

The next sections report on the results from the module outlines, FGD and interviews thematically. The findings of each data group are reported on collectively to make evident similarities and differences across the sample population.

4.3. Themes

The themes and sub-themes developed in this study are outlined in table 5.

Table 5 Themes and sub-themes

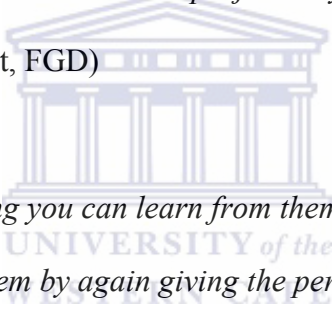
	Theme	Sub-theme
1.	Participants understanding of collaboration	
2.	The importance of collaboration	Learning
		Personal development
		Patient outcomes
3.	The development of collaboration	The teaching space
		Clinical placement
4.	Skills necessary for effective collaboration	Communication
		Conflict management
5.	Assessment	
6.	Alignment of curriculum	
7.	Challenges to developing collaboration	

4.4. Participants understanding of collaboration

Participants were asked in both the focus group discussions and the interviews about their understanding of collaboration. Their responses indicated that they viewed collaboration as individuals working together to disseminate knowledge and ideas concerning a goal or project.

Usually when people collaborate, they bring their own unique ideas or they impart a bit of themselves into the project they are working along with others.

(Fourth year student, FGD)



By you collaborating you can learn from them [healthcare professionals] and also incorporate them by again giving the person the best treatment possible – because if you don't collaborate with them, you've got your knowledge and your views on how to do a treatment and that's all you know but maybe with his views and his knowledge you can add and incorporate it into yours and make it more effective. (Third year student, FGD)


Collaboration for me means working with another team or another set of people on a specific goal. So we define a specific goal together and one team comes together with the other team and you work to reach the specific objectives. So that's what I think means collaboration in my context.

(Associate Lecturer, interview)

Collaboration can occur in various interactions, either between students in the same discipline or various disciplines:

When I think of collaboration I think of working with either another physio or with another person of the multidisciplinary team in treating and helping a patient; so getting their view, getting their ideas on how we can move forward and working with them as a team to make sure that the patient gets the best treatment – that's what I understand.

(Third year student, FGD)

The logo of the University of the Western Cape, featuring a classical building facade with columns and a pediment, with the text 'UNIVERSITY of the WESTERN CAPE' overlaid.

Collaboration is bringing students from different professions or students within the department because we are having different types of students – so when you are bringing them together maybe in group work and you want them to work on a specific topic but you take different people. (Senior Lecturer, interview)

Collaboration does not only occur between clinician and student, student and lecturer, but also between departments within university faculties or across universities, transcending professional boundaries.

Working and collaborating with their supervisors and the clinicians at the hospital, in order to gain the best experience or the most learning from that.

(Lecturer, interview)

I suppose you could collaborate with a person within your department around a specific topic but also collaborate with across departments within a facilities within your university and then across universities – if we're talking within the education university, higher education arena. (Associate Professor, interview)

When asked about her understanding of collaboration, an interview participant associated it with research.

I'm actually not quite sure to make of the word – because if I hear 'collaboration' I always think of research. (Lecturer, interviews)

For collaboration to occur effectively, contributions by every individual are necessary. People may take up different roles when working together. These points were well expressed by an interview participant who said:

I think different people have different levels of input into collaboration; so some people might take a leading role. So people have different roles a part of the collaboration, but for me if you're talking about collaboration, everybody must, I almost want to say 'pull their weight' and everybody must contribute so it cannot just be in name that you're working as part of a task.

(Associate Professor, interview)

The quotes represented above present clear evidence that student and lectures have several different interpretations what collaboration means. They understood it to be the dissemination of knowledge and ideas towards a shared goal that could occur between individuals or teams of individuals, within or across professional boundaries as well as within or across departments of higher learning institutions. Participants shared different opinions when asked what collaboration was for them, but together their quotes present a pleasant conception of what it is.

4.5. The importance of collaboration

The importance of collaboration is clear from the prominent position it holds in the UWC Charter of Graduate Attributes. Applied Physiotherapy 1 and Applied Physiotherapy- pathologies both emphasise students needing to: “work effectively in groups as part of a team with shared goals.” Students are also expected to “work collaboratively as part of the small group sessions” in their first year of physiotherapy as outlined in the Applied Physiotherapy 1 module.

Participants from both focus group discussions and semi-structured interviews were questioned on how important they understood the development of competence in collaboration to be. Their responses were varied and in-depth and are presented according to the following themes: Learning, personal development and patient outcomes.

4.5.1. Learning

Participants in both FGD and interviews associated collaboration as important for learning. Learning was developed through the dissemination of information and peer interactions.

4.5.1.1. Dissemination of information

Participants in both data groups acknowledged that collaboration was important for the dissemination of knowledge by getting different perspectives from different individuals.

I think it is very important because it kind of brings the perspective from many different people or different things – because that's how I understand collaboration is different things coming together and forming one thing. So many different people coming together and then you bring different opinions, different values, different skills. (Fourth year, FGD)

Not everybody knows everything so it's a good way to learn new things as well and to contribute towards whatever the problem or what you're trying to work towards. (Fourth year student, FGD)

By collaborating with others, one can also draw on the strengths of individuals for self-improvement and for better results.

If you're working with one another you are bringing each other's strengths out...So you get to learn from yourself and learn for that other person – that will only make you a better physio in this circumstance because you're sharing ideas, you're sharing techniques, you're sharing information. (Third year student, FGD)

One of the participants suggested that collaboration in higher learning would be beneficial for curriculum development.

By collaborating and finding from other institutions how we can improve our own curriculum or getting other institutions involved to help us improve certain modules or courses, I think it is beneficial...(Associate Lecturer, interviews)

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Collaborating isn't only about sharing of information, it also requires individuals to listen and process what is being shared.

...it's not only about sharing but we actually need to listen and to think about what other people say in any situation. (Third year student, FGD)

You don't have to experience something, you can learn by looking or listening in any situation. (Third year student, FGD)

4.5.1.2. Peer learning

Collaboration amongst students provides them with the opportunity to learn together and also to teach each other. Students may understand a concept better or may not feel intimidated with feedback from another student compared to a lecturer or facilitator. This was noted by participants in both the focus group discussions and interviews.

So indirectly students don't know the effect that they might have on another student just by saying something out loud. Maybe they don't understand it first time from a lecturer or from a doctor or from a nursing sister or from a clinician, but hearing it from a student or hearing it from someone that's on the same level, it helps. (Third year student, FGD)

By collaborating or working with other people or other students, you can achieve much more because they bring something different to the plate. Getting input from another student, if it's one student getting input from another student, I think it helps to improve and bring in new skills and just gives a different point of view. (Associate Lecturer, interview)

We take a UWC student and a UCT student to give them a patient that they must work on together and then they present that patient to a group of students who are then a mixed bunch of UCT and UWC. In the clinical setting that's one way that we get students to learn from each other. They can capitalise on someone else's knowledge. (Associate Lecturer, interview)

The learning gains through collaboration are well expressed by both students and lecturers. Peer interactions as a means to both teach and learn was an interesting viewpoint shared by both FGD and interview participants.

4.5.2. Personal development

Personal development is a process of self-awareness and self-identity. This section presents how students associated collaboration towards improved personal development particularly openness and validation.

4.5.2.1 Openness

Collaborative interactions are characterised by participants being open to constructive criticism while maintaining mutual respect. Participants in the focus group discussions highlighted openness as being important for collaboration.

When we're forced to work in groups you have to open yourself up to being criticised, you can't always think you're always right, and you have to be open to someone else adding their opinion in – and their opinion actually might be more correct for a certain situation and it really teaches you...And if you can't adjust and adapt and work with others then we're in the wrong profession. (Third year student, FGD)

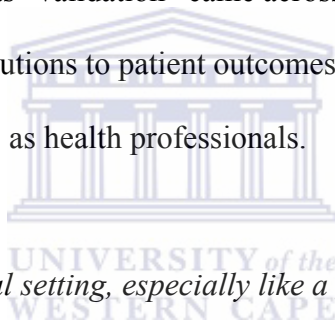
I tend to think that if you work alone you might be closed-minded about something but if you just get an opinion from someone else and another point of

view, you might learn and change your perspective on things. (Fourth year student, FGD)

You can't have this tunnel vision if you're in physiotherapy; you need to be open to not being the best and being able to improve on a daily basis because it's such a fast changing field. (Third year student, FGD)

4.5.2.2. Validation

The idea of collaboration as “validation” came across in the third year FGD. Students felt that when their contributions to patient outcomes were acknowledged, it substantiated their purpose as health professionals.



Being in the clinical setting, especially like a general hospital where you're dealing with nurses, social workers, doctors, it's important to realise that you are still a student and your opinion does matter; some doctors actually care about what you think. (Third year student, FGD)

So like when that doctor spoke to me about what am I going to do, what's this patient's plan or future I actually felt good about it because I can think about it and I felt like my job has a meaning. (Third year student, FGD)

A doctor came to me after the operation, after he was stable and he asked me what I think his functional abilities are or what is the future for his patient. So that was nice for me... (Third year student, FGD)

Being one of three universities in the province, when UWC physiotherapy students collaborated with their colleagues from the other two universities, it provided validation on their own learning. This was expressed in a semi-structured interview by an Associate Lecturer who ran multi-university tutorials in the clinical setting.

So to me in the clinical setting that's one way that we get students [from all three universities] to learn from each other. They can either capitalise on someone else's knowledge, they realise that we know the same things, that one is not better than the other. (Associate Lecturer, interview)

Collaboration leads to personal development particularly being open to opinions and constructive criticism. Collaborative activities can also lead to feelings of self-worth and professional validation. Both these perspectives are also significant for interprofessional collaboration.

4.5.3. Patient outcomes

Physiotherapists are part of a multidisciplinary team and as such they need to work with other health professionals for holistic management of the patient for improved outcomes.

It doesn't matter where they're going to work, physiotherapy is a just a discipline that is part of a team; so if you're treating a patient with a stroke even more so you have to be able to work with someone to produce something – so you have to work with that OT and speech therapy person, to be able to produce a holistic happy patient at the end of the day. (Associate Lecturer, interview)

This was also commented on in the third year focus group discussion.

...by you collaborating, you can learn from them [other healthcare disciplines] and also incorporate them by again giving the person the best treatment possible. (Third year student, FGD)

Collaborating within the multidisciplinary team isn't the only element that is important for improved patient outcomes. Including the patient in the decision making process by setting treatment goals was stated by students in both focus group discussions.

I think it is definitely important so that the patient understands what exactly you are doing so that you can also find out what's their most important goal.

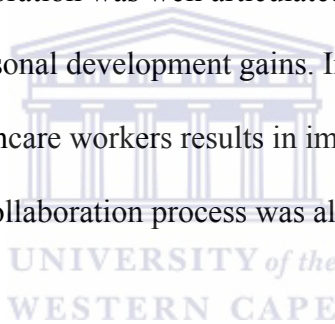
(Fourth year student, FGD)

I think it's very important to get the feedback from them [patients] and not just work around them because the majority of the time they are worked around.

(Fourth year student, FGD)

So it's important to realise that your patient is the main focus and you need to sometimes put your own things aside...(Third year student, FGD)

The significance of collaboration was well articulated by both students and lecturers. It results in learning and personal development gains. In the healthcare sector, collaboration among healthcare workers results in improved patient outcomes and including patients in the collaboration process was also remarked on by students as having importance.



4.6. The development of collaboration

This section looks at how students are being developed in order to work collaboratively as part of their professional development. It reports on the educational experiences of the students in the context of collaborative work and on the physiotherapy educators' perspectives on how collaborative competency is being developed among physiotherapy students. This section also reports on the extent to which the current curriculum (physiotherapy modules) emphasised and operationalised the development of collaboration as illustrated in the Pedagogical framework. Students learning

environments involve the teaching space and clinical placements. As such, this section is reported on according to the learning environment i.e. - The teaching space and clinical placements.

4.6.1. The teaching space

The first component of this section is the presentation of the learning outcomes that were associated with collaboration in the physiotherapy module guides. These outcomes were extracted based on their relevance to the Pedagogical framework i.e. to establish and maintain interprofessional relationships, which foster effective client-centred collaboration; to collaborate with others to prevent, manage and resolve conflict; effectively and safely transfer care to another health professional through written and verbal communication. These learning outcomes and the modules and the years they are presented in are depicted in Table 5. There are not many learning outcomes related to collaboration in the second year of study with more learning opportunity in the first and second year of studies.

Table 5 Learning outcomes associated with collaboration in the Teaching space

Learning outcome	Modules that include the learning outcome	Year offered	Associated competency
Describe the holistic and multi-disciplinary management of a patient with a described condition	Applied	2	Respecting and understanding the roles and responsibilities of other healthcare professionals towards patient-centred care
	Physiotherapy 1	3	
Work effectively in groups as part of a team with shared goals	Applied	2	Respecting and understanding the roles and responsibilities of other healthcare professionals towards patient-centred care
	Physiotherapy 1	3	
Rehabilitation teams and outcome levels, collaboration of teams and systems	Applied	2	Respecting and understanding the roles and responsibilities of other healthcare professionals towards patient-centred care
	Physiotherapy - Pathologies		
Demonstrate an ability to perceive the emotional and physical needs of their patients (i.e. to demonstrate empathy)	Disability and rehabilitation	2	Respecting and understanding the roles and responsibilities of other healthcare professionals towards patient-centred care
	Applied	3	
Demonstrate an ability to perceive the emotional and physical needs of their patients (i.e. to demonstrate empathy)	Movement Science 3	3	Fostering collaboration with relevant other stakeholders in patient care
	Applied	3	
	Physiotherapy - Pathologies		
Demonstrate an ability to perceive the emotional and physical needs of their patients (i.e. to demonstrate empathy)	Applied	2	Demonstrate a respectful attitude towards colleagues and the interprofessional team in order to foster positive relationships.
	Physiotherapy 1	3	
	Applied	3	

Learning outcome	Modules that include the learning outcome	Year offered	Associated competency
Explore their own prejudices, biases and emotional responses to morally confusing situations	Applied Physiotherapy 1 Movement Science 3 Applied Physiotherapy - Pathologies	2 3 4	Identifying issues that may result in conflict and employing collaborative skills to resolve them
Respect for diversity, conflict of interest	Professional Ethics in Physiotherapy	4	Identifying issues that may result in conflict and employing collaborative skills to resolve them Demonstrate a respectful attitude towards colleagues and the interprofessional team in order to foster positive relationships
Communicate effectively and participate in a networked world	Applied Physiotherapy 1 Applied Physiotherapy – Pathologies	2 3	Demonstrating the use of written and verbal communication for safe transfer



4.6.1.1. Group work

Group work is a learning activity that students and lecturer associate with collaboration. The format of the group work varies through each module requiring more in-depth involvement of students in some more than others. For some modules such as Physiotherapy techniques 1 and Exercise to promote health, students are meant to “break up into smaller groups to practice the techniques on each other.” In others, students are required to discuss case scenarios in small groups for modules such as Disability and rehabilitation and Applied physiotherapy 3.

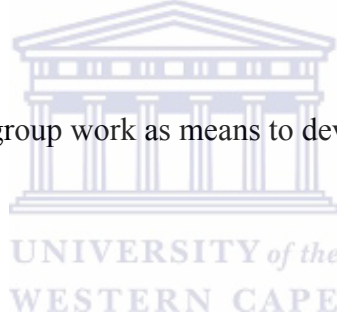
Modules such as Community-based rehabilitation and Applied physiotherapy 1 require students to work in groups to complete assignments and present them which they are assessed on. Students are also assessed by their peers on behaviour, respect, punctuality, effort and contribution on group assignments and projects. In modules Applied physiotherapy 3 and Movement science 2 although group assignments are incorporated as a learning activity, no peer evaluation is included.

In the classroom, students in both focus group discussions viewed group work as a means to develop collaboration. An example of how students worked in groups is described below,

I think it starts from case-based learning, that's how we started collaboration and group work, and then when you go into clinical practice you also have to collaborate with other students from other universities and also different professionals as well, like from doctors, nurses, to clinicians. (Third year student, FGD)

That's case studies, in just your general lecturers and working in groups in sporting environments like sports management, management of practice, that sort of stuff, which may be appropriate. (Fourth year student, FGD)

Lecturers also associated group work as means to develop collaborative work in the teaching space.



They do collaborate in the form of...doing case scenarios or case studies, so...they would sit down in a group and they would discuss cases, and then they will work through the information in that sphere. That is the only form of collaboration that I currently implemented. (Associate Lecturer, interview)

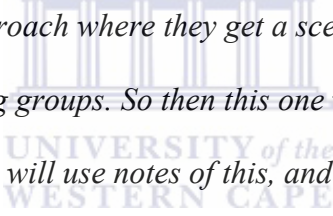
We do a lot of group work, we do a lot of group assignments as well and especially in the first and the second years we do encourage them to work together in groups, and that's really to teach them to work with each other and to get to know different cultures and different personality types.

(Lecturer, interview)

Although one lecturer's response came across as unsure in her remark and the tone she used to convey her view.

Group work – I mean, isn't that collaborative when you sit in a group, especially with applied. (Associate Lecturer, interview)

Group work required students to work through case scenarios together and then answer related questions collaboratively.



The case study approach where they get a scenario, and they must go and research in working groups. So then this one will go to that site, this one will get a textbook, this one will use notes of this, and whatever. And then they will get together because they must collaboratively [answer] each question.

(Lecturer, interview)

There was a lot group work where they are given a case and they've got to work through the case. So they sort of help each other; one's looking up information and this one finds this information – they share the information.

(Associate Lecturer, interview)

When prompted if they worked collaboratively as opposed to co-operatively in group work, students in the fourth year focus group expressed they work more collaboratively

in their final year compared to their previous years of study. They felt more able to engage in discussions and work through tasks collaboratively. A participant from the interviews also commented on students co-operating in group work in their second year of study.

This year it's more of actually discussing everything. Like I say it's from my experience, we have actually worked on the same task together so that everybody can say their view or contribute their piece towards it. I think that would be more collaborating as opposed to everybody, okay, you do this, you do this, and you do that. That would be cooperating. (Fourth year student, FGD)

I think second year level is just cooperating; I don't really think that they're collaborating; it's just another module that they must pass. (Lecturer, interview)

Group work was viewed as means to develop collaboration. The structure of the group work defines how collaboratively students are interacting.

4.6.1.2. Interprofessional Education

The concept of interprofessional education emerged in both the interviews and FGDs, although students and lecturers had different perspectives on the value of the concept. Students in the fourth year FGD were more vocal regarding IPE compared to the third year FGD. In addition to modules that included IPE as an approach, there is also one activity that appears to deal almost exclusively with IPE. An interview participant

described the structure of the interprofessional education activity offered in the final year of study in the CHS faculty.

...we have at the university what are called world cafes. So on campus we bring together students from different professions. I think we have four sessions per year; and the students within those groups are meant to [explore] cases. And so it's not real living cases, its paper cases, and definitely within those sessions they are able to identify different roles, to develop some of the communication skills.

(Associate Professor, interview)

However, the students in the fourth year focus group discussion did not identify this as a beneficial learning experience. One of the students concluded that the module added no value to learning with another student who had attended the seminar [*world café*] felt that there wasn't adequate representation of professions.

...now in our fourth year, we know that there's a seminar that we'll have to attend later in the year, but from what our friends have told us the seminar is a total waste of time because it doesn't help at all. So basically in our curriculum we do interact with other healthcare professionals on campus but it doesn't pertain to what our roles actually are. (Fourth year student, FGD)

The reason why I felt it was a waste of time is because we're only doing this in fourth year... And it was only us and nursing students. (Fourth year student, FGD)

Students also interact across professions in the first and second years of study. There were contrasting views on the learning value of these modules by students. The students in the fourth year focus group felt they needed a better understanding on the role of each discipline and that these modules should be more relevant to their profession.

I feel in our first and second years they focused a lot on integrating us as disciplines, but they didn't actually focus on getting each discipline to understand the roles of the disciplines they're working with. Like they tried just to get us together so we know there is OT and dietician and speech therapy. (Fourth year student, FGD)

When they talk to us about collaboration, when we do collaborate with other departments on campus from nursing or OT or dietetics, we collaborate in a way that's not related to our professions. They mainly focus on getting us together so that we know that the profession does exist, but they don't focus on getting us to understand what they actually do. (Fourth year student, FGD)

The question I've been asking is really how useful is the classes or the lectures that you give us if it doesn't really give us insight to how we will be interacting with them on a professional level in future? (Fourth year student, FGD)

Following on these views, students in the fourth year FGD were asked if they worked in collaboration or co-operation during interprofessional activities. Students felt they co-operated to get the task or project completed.

We're cooperating just to get the project done. (Fourth year student, FGD)

Second year is quite hectic in terms of theory and tests and assignments and stuff, so that's one subject that you actually want to just get out the way, so a lot of the time I found that I was doing most of the work. (Fourth year student, FGD)

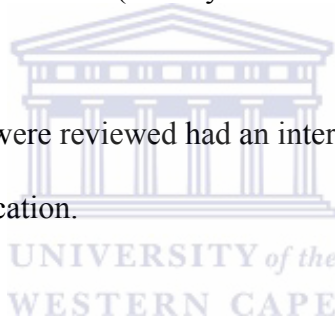
An interview participant expressed a similar observation among students.

When I talk to the students they actually just view the module as a waste of time; they don't actually view the module as something that they need in life – now that I think about it, maybe that's why they come to third year and then still does not know what an OT does. (Associate Lecturer, interview)

A contrasting view shared by a third year student found the interprofessional modules provided students with opportunities to develop collaboration by learning about other disciplines through interaction.

... It does start with some of the courses we take like IHP where they bring the physios, the OTs, the dentists, they bring us all together; and then we obviously have to focus on the subject but we also get talking about your profession, my profession; what you do, what I do. And there we build up an understanding of each other and what we do. (Third year student, FGD)

None of the modules that were reviewed had an interprofessional element in association with interprofessional education.



4.6.2. Clinical placements

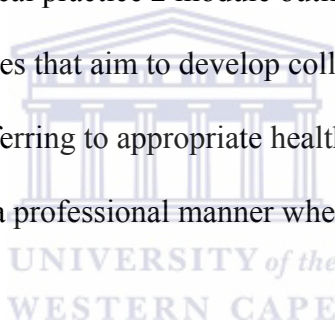
Clinical placements allow the students to assess and treat clients or patients in the clinical setting. Besides assessing and applying practical techniques to pathologies and health conditions, students should be able to conduct a needs assessment and analyse problems. Clinical settings include: Tertiary and secondary hospitals (Intensive Care Units and wards), community healthcare centres, rehabilitation centres, schools, clinics and occupational health centres.

This section will report on the learning opportunities related to the development of collaboration in the clinical setting. The following themes are reported on:

Multidisciplinary teamwork; role of the clinician, and barriers to collaborative work in the clinical setting.

4.6.2.1. Multidisciplinary teamwork

Collaborating with healthcare professionals is important to multidisciplinary practice and has been linked to improved health outcomes in terms of safety and quality of patient management. Clinical practice 2 module outlines also make reference to the following learning outcomes that aim to develop collaboration: working in a multidisciplinary team; referring to appropriate health professionals when necessary; conducting themselves in a professional manner when interacting with patients and staff at clinical placements.



A lecturer also expressed the importance of teamwork in interprofessional practice

Collaboration is a big aspect of teamwork; you need to be able to collaborate – so if we're talking about teamwork and if we're talking about interprofessional practice, teamwork is very important in that aspect. And the focus around teamwork is quite important as we're developing graduates who we are saying need to meet the needs of society or the population. So no one profession is able to meet all the needs and the outcome is documented to be better if you are able to work in a team. (Associate Professor, interview)

A third year student also spoke about interprofessional teams collaborating towards patient-centred goals.

Couldn't it also be with interdisciplinary team where you have the same patient and you have a goal and you want to see someone else's view, so you can basically see what their opinions are, what your opinion is, and then you can work together on what is the best opinion in moving forward. (Third year student, FGD)

A keen understanding of the roles of healthcare professionals within a multidisciplinary team is essential for effective collaboration. Interview participants were of a similar opinion:

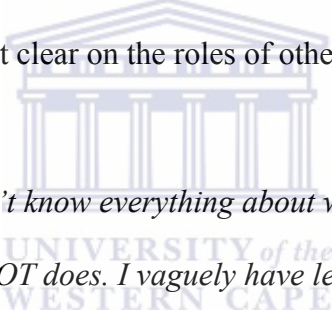


So if they don't have an understanding of what the roles of other healthcare professionals are when they are managing the patient, they will keep that patient to themselves, and then instead of maybe referring and making sure that the patient is being treated holistically – because you still have that physio, 'It's my patient.' (Senior Lecturer, interview)

I think the tolerance within communication; a sense of equalisation in the sense that realising that everybody has an important role to play. So role clarification is another aspect. (Associate Professor, interview)

If they have information of what other healthcare professionals are doing it will assist them to know how to work with those particular professionals ... if they do not have the information of what other healthcare professionals are doing, it will be difficult for them to refer or to collaborate or to work with someone else when they are managing a patient. (Senior Lecturer, interview)

When students were asked about their understanding of the roles of healthcare professionals of the multidisciplinary team, the responses from the fourth year FGD indicated that they were not clear on the roles of other health professionals.



No. I feel like I don't know everything about what exactly a speech therapist does or what exactly an OT does. I vaguely have learned through experience in the last two years. (Fourth year student, FGD)

A definition is not exactly the same thing as describing roles. So I think what would help with that...just a list of examples or something like that of what each health professional does. (Fourth year student, FGD)

On the other hand, the third year FGD participants provided examples of how they understood the role of healthcare professionals. One student alluded to the fact that multidisciplinary teamwork could result in developing transferable skills.

So through learning from others and observing and paying attention and being willing to be a part of a team you're able to pick up that and do what's best for your patient. (Third year student, FGD)

Students are encouraged by their clinical supervisors to attend ward rounds as part of their interprofessional learning.

In the clinical context they have to attend doctor ward rounds or in the ICU setting and they have to closely work with the nursing staff because that's the person that's there with the patient all the time. (Senior Lecturer, interview)

Students in the fourth year FGD found when they attended ward rounds, they did not feel included.

When the doctors do ward rounds and you are there, they speak to themselves and their students – like they don't involve anybody else, they don't even involve the patients. (Fourth year student, FGD)

I know when they did ward rounds in the ICU, we kind of just walked with (them), but it felt like we were sneaking in to hear, it feel like we weren't actually invited to be part of it, we were just like there, we weren't part of it. (Fourth year student, FGD)

They [doctors] were running the show, talking, but within themselves about themselves. (Fourth year student, FGD)

Multidisciplinary teamwork is an important facet of interprofessional collaboration. It requires the understanding of the role and responsibilities of all team members.

Multidisciplinary ward rounds are opportunities to develop interprofessional collaborative competencies but the lack of inclusion can be a barrier to learning and development.

4.6.2.2. The effect of multidisciplinary interactions on developing collaboration

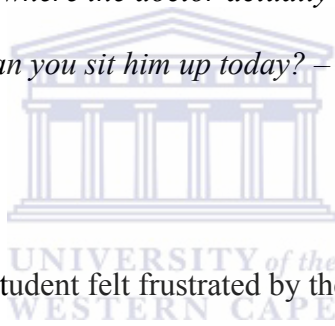
The students reported on their multidisciplinary interactions in the clinical settings. As noted above, this is also encouraged as a learning outcome in the Clinical practice 2 module outline. Most interactions that the physiotherapy students were involved with were with nurses, occupational therapists and sometimes the doctors. Interactions have been both positive and negative. One student conveyed that an invitation by a surgeon to observe his patient's surgery was positive in terms of developing empathy. Other students reported that by the doctor asking for their input regarding the patient, they had a feeling of self-worth.

I collaborated with a surgeon in my general block. The patient was an amputee, so it was pre-operation, so I actually got a chance see the operation... in my treatment afterwards I could be more empathetic rather than sympathetic

because I saw how much it was on the patient. So I think collaboration, that's how it helped me. (Third year student, FGD)

...a doctor came to me after an operation...he asked me what I think his [the patient's] functional abilities are or what it the future for his patient. So that was nice for me because I thought about it and the doctor helps to a certain extent and then it's handed over to us. (Third year student, FGD)

...there were times where the doctor actually would ask me what are you doing with this patient, can you sit him up today? – All of that. (Fourth year student, FGD)



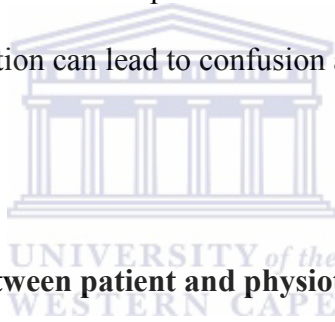
Contrary to this, a fellow student felt frustrated by the lack of communication from the surgeon on her block. One student felt obligated to stop her treatment due to doctors ward rounds as they were not engaged on the patient's well-being.

I had the surgeon saying something different and my clinician saying something different, and I was stuck in the middle...I was frustrated...And the surgeon wasn't willing to talk to me, explain to me the x-rays or the fractures or why he's doing what he's doing. He just said, you just do your job. (Third year student, FGD)

And even if you are busy with your patient the doctors will still come and stand around there – and because they're always in a big group you always feel intimidated by them, so you feel obligated to actually just stop the treatment so they can finish their little round before you can continue. (Fourth year student, FGD)

Student responses reflect positive and negative interprofessional experiences.

Communication including listening to the opinion of other health professions is an essential component for effective interprofessional collaboration among healthcare workers. Poor communication can lead to confusion and frustration, ultimately effecting patient outcomes.



4.6.2.3. Collaboration between patient and physiotherapist

Engaging and working with the patient was stressed by an interview participant. The relationship between patient and the student should be one of togetherness, not a dictatorship.

I'm thinking of things like patient-centeredness and when we talk about a patient or a client, the approach, we're talking about what's the student's idea of the role of the patient in the management, and it's not a matter of I give you and I'm treating you, but it's a matter of together you and I are, we're kind of on the same, I don't want to say level. (Associate Professor, interview)

The students also felt that it was important to include the patient in the decision making process. Without patient-centeredness, interprofessional teamwork has little rationale. Communicating with patient in terms they could understand and recognising one's own short comings was important for building trust.

They'd rather ask the physio because they know that the physio is going to explain it to them in terms that they can actually understand and they can actually be a part of their own health; patients like being or feeling empowered.

(Fourth year student, FGD)

It's important to be honest if you don't know something, obviously not to cross that line to tell them something that's not true...And they also instil a lot of trust in you when they hear you know what you're talking about.

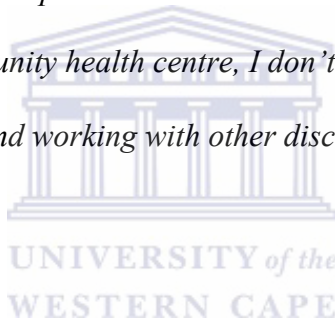
(Fourth year student, FGD)

Collaboration with the patient is core to interprofessional relationships and should be dealt with in a trustworthy behaviour alluding to ethically.

4.6.2.4. Role of the clinician

Role modelling is an important teaching method that most students encounter through their medical training. This section reports on how the clinicians at clinical placements are viewed in the context of collaboration.

I think that some clinicians at certain placements can actually be quite good. But then I also think that some clinicians at other placements are not that good. So perhaps a placement like [name of clinical placement], I think that that's probably a good example to model the students; but I think that when they are in at a CHC, a community health centre, I don't think there's that much emphasis on collaboration and working with other disciplines. (Associate Lecturer, interview)



The clinicians work in silos when they are in hospitals or in the clinics, they are working separately. So it's difficult to say they would be pushing the collaboration in a setting. The main focus is for them to do their job. (Senior Lecturer, interview)

I think we try and teach them components of interpersonal relations and team work, but multidisciplinary collaboration I think not so much because it doesn't happen as much in the clinical setting. (Lecturer, interview)

Students reflected on how clinicians influenced their ability to collaborate within a multidisciplinary team. One student in the fourth year focus group had opposing experiences with clinicians. The student's positive experience in her third year encouraged her to take the initiative in her fourth year.

In my third year I was encouraged by the clinician at the placement. She told me that if I needed to speak to anyone or any of the health disciplines, then I could pick up the phone and I could always phone them and ask them about my patients. But in my fourth year, especially my first block, they babied us more, so we were told not to do that – so I kind of had to take my own initiative and actually go to the OT and ask her if she's seen this patient, if the patient's measurements is taken for a wheelchair or if the patient's going to get a brace, or whatever. (Fourth year student, FGD)

They made me feel like a professional – like they didn't treat me like a student. And if I didn't do something that they knew I had knowledge of they would speak to me on a professional level instead of a student. (Fourth year student, FGD)

One student reported that her clinician's lack of confidence to contribute in a ward round discussion impacted her (the student's) ability to contribute as well.

But if the clinician is also too scared to say something then you kind of like, oh, what are we going to do now? So if she was more like, no, you're right, as

physios this is our right to speak; she was also just too scared to say something.

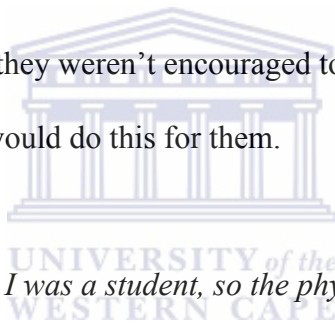
(Fourth year student, FGD)

In another student reported, a student mentioned that he would have attended multidisciplinary meetings if his clinician had not described it as ‘boring’.

I think if I wasn't told that it was boring I probably would have gone more often.

(Fourth year student, FGD)

Some students mentioned they weren't encouraged to provide feedback in MDT meetings as the clinician would do this for them.



I think it's because I was a student, so the physio that was in charge or the clinician, he basically did the talking on my behalf. (Fourth year student, FGD)

The clinician will mostly answer the questions [on clinical ward rounds].

(Fourth year student, FGD)

On being asked if interprofessional interactions were beneficial to their development, students responded that they learnt from exposure to these kinds of interactions.

I think you learn from the various experiences and the more you're actually exposed to, the better it is for you in the long run. (Fourth year student, FGD)

I think that through experience that's the best way for us to learn to collaborate.

(Fourth year student, FGD)

I just think that the earlier you are exposed to collaborative learning the better.

(Third year student, FGD)

Clinicians do role model the behaviours that are necessary for students to develop interprofessional collaboration. Students develop the ability to collaborate through active engagement with other healthcare professional and through observation of professional behaviours. Students agree that clinical placements and interprofessional interactions were beneficial to their development collaborative practice.

4.7. Skills necessary for effective collaboration

The development of skills was commented on by an interview participant and was then subsequently followed up in all interviews. Communication and confidence were strongly identified as being linked to the ability to collaborate.

4.7.1. Communication

It was noted by participants that communication, both verbal and non-verbal (written), was important for teamwork.

The skill that they definitely need is good communication skills [verbal and non-verbal], there needs to be ethics around teamwork, around working as a clinician, patient ethics. And I think then with that will come the respect for others. (Associate Professor, interview)

Communication, it would be part of collaborating because they need to be able to refer a patient so that is one kind of communication. (Senior Lecturer, interview)

Communication between lecturers and students was also deemed to be important by third year students to improve understanding of content being taught.

...if a lecturer doesn't convey the correct message or doesn't have the right attitude or doesn't have the student's attention, it's not necessarily that the students don't listen or don't focus, they might be too intelligent to convey onto our level. (Third year student, FGD)

I think many lecturers struggle to convey their experience, their knowledge – they're too clever, they're too smart – they don't know how to put it into layman's terms or simple terms so that we can understand. (Third year student, FGD)

One of the lecturers stated that students should have the confidence to voice their opinions, as well as have confidence in their own knowledge.

I think if the student doesn't have the confidence to just speak their mind or voice their opinions, then it's very difficult for them to collaborate. And I think the confidence not only in the personal context but also in what they know or in what want to do clinically. (Lecturer, interview)

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4.7.2. Conflict management

Participants were questioned on how students managed conflict within collaborative interactions. This question arose as a result of the Pedagogical framework. One of the key competencies around collaboration was the ability to prevent, manage and resolve issues that may result in conflict within collaborative interactions. One of the lecturers recognised the importance of conflict management.

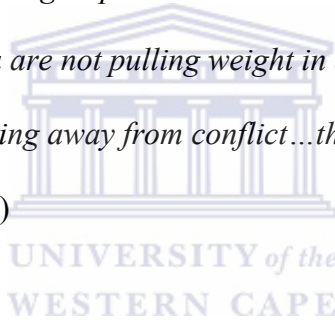
*I think it's important that it's not just expected they're able to manage conflict ...
I think it's an important skill to be able have because they often go to areas*

where conflicting ideas arise and they need to know how to deal with it.

(Associate Professor, interview)

Another lecturer reported that students tend to avoid conflict, rather expressing their dissatisfaction with others performance through, for example, group or peer assessments.

If you are not part of the team, then you are breaking the spirit of other team members. You won't know that until other people tell you ... They will keep quiet cos they are using the group assessment and that is where they are going to be exposing you if you are not pulling weight in a group. So in terms of conflict, I think they are running away from conflict...they don't like confrontation. (Senior Lecturer, interview)



This was confirmed by a fourth year student who expressed she would rather avoid conflict.

I don't like conflict, so I won't confront a person and tell you really you have to do your work. I would rather take on your work as well because I still want to do well in my assignment. (Fourth year student, FGD)

Explanation and listening were noted as important for addressing conflicting issues by another student.

If there's a conflict of interests on my regard I would explain where we are coming from and what we are saying and they obviously give their part ... I explain my part and if I didn't understand something or if they made a good point that I maybe wasn't sure and I would then go and consult with a more senior physio. (Fourth year student, FGD)

Another student reported that he wasn't comfortable in addressing areas of conflict and felt that a mediator would be better able to assist in resolution around conflict until such time as he was able to do this independently.

Yes, probably what I'm trying to say is that I don't have to do it because firstly I haven't learned it yet or I'm not comfortable or I don't know how do I approach it. (Fourth year student, FGD)

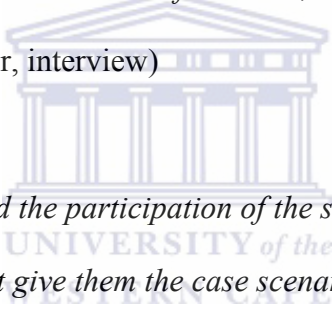
Prevention, management and conflict resolution is necessary collaborative activities and within the healthcare teams where conflicting opinions may arise. Students avoid dealing with conflict as stated by a lecturer with some of the students acknowledging the very same fact. Inadequacy to address conflicting situations was stated as a limitation. For student to develop collaborative abilities, they need to be able share their views even if it does conflict with other opinions and is transferable to clinical practice where quality and safety of patient care in imperative.

4.8. Assessment

Lecturers were asked how they assess students on their ability to collaborate, specifically as it relates to collaborative activities. Lecturers' responses suggest that there is no clear assessment tool.

At the moment we don't [assess collaboration]. What we are suggesting is for departments to include it as part of the end of block assessment of the students, whether that's been done or how far that is, I'm not a hundred percent sure.

(Associate professor, interview)



...I haven't assessed the participation of the students during the case scenarios. I would normally just give them the case scenarios – they will sit down and then they will provide feedback with regard to the questions that I raise, concerning the specific case. (Associate lecturer, interview)

They're not assessed. It was assessed when we had the proper case-based learning, when we had applied done in the case-based learning, ... so you could see who commented, who gave input, their contributions and they will fill in a form to say they contributed so much and this one contributed nothing, but it's very subjective. (Lecturer, interview)

One method to assess how students collaborated was done by students through peer assessments.

Each of the students evaluate each other; they hand in like a peer review form where they rate each other, each member of the group rates the other person on things like their contribution to the research, being generally polite and friendly, the effort put into the project altogether. So I guess that's some sort of a measure of how collaboratively or how well they're able to work collaboratively. But I guess we don't evaluate – as a lecturer I don't evaluate students on their ability to cooperate or collaborate in teams. (Lecturer, interview)

To add on, a fourth year student felt peer evaluations should be more heavily weighted and should not only be done at the end of group projects. By introducing an initial peer evaluation, it was believed that difficulties in group work could be addressed earlier and results in a homogenous project.

I honestly strongly feel peer assessments held more value because it's normally a percentage of the entire mark and when my peer assessment, if you're getting two out of ten, it's not because you must get 10% less, you must get a lot less because you did nothing.... I never see the real repercussion. So if there is something wrong – why? Come and call that group in: what is going on here, let's discuss it. (Fourth year student, FGD)

4.9. Alignment of the curriculum

Interview participants were asked on how students could be better developed to collaborate. It was noted that the structure of tasks should be better aligned to develop collaboration.

I think the way in which we structure the group work, we need to have at the back our minds: I'd actually like to develop it so that's it's a collaborate effort...

(Associate Professor, interview)

I think in the classroom if you want to develop collaboration you do need to be probably a little careful about what tasks you're going to give them.

(Associate lecturer, interview)



A fourth year student also stated that collaboration is not emphasised within tasks.

They don't emphasise [collaboration] and say, hang on, it's less important if you get there, of course you still need to, but it's more important that if you are working together...if there was emphasis on maybe providing a channel if someone's not integrating or giving feedback – say so, because that's now collaboration. (Fourth year student, FGD)

4.10. Challenges to developing collaboration

Interview participants were questioned on the challenges they encountered when trying to develop collaboration among students. Students' attitudes towards working with their colleagues and collaborating with students from diverse backgrounds to their own were discussed. Some students have difficulty embracing collaborative work and trying to include them was highlighted as a challenge.

I think that maybe just their attitude – you know, they just want to do what they want to do and what they came here to study, they don't want to think of working with other students... (Associate lecturer, interview)

The one thing that students always highlight is the difficulty [of] working with people from different backgrounds and different classes and different races than what they are... And there are always some students who embrace it and some just really withdraw from the process completely – and it's a challenge to try and keep those students included and involved. (Lecturer, interview)

In addition, another participant suggested that how the facilitation of collaboration is received by students could also be a challenge.

I think our knowledge and skills maybe and the area of assessment of these skills may be limiting. And how is it [facilitation of collaboration] received by the students, I think that could also be a challenge – why are we doing this; what are we doing it for? (Associate professor, interview)

Students themselves need to see the value in learning without looking at the mark input.

I think the students need to see the value in something that goes broader than a ward round, in having a case discussion or a case conference, and the value in that without being allocated a mark. (Associate professor, interview)

Student participation in group activities was underlined as a challenge as it was difficult to know who contributed to the tasks. Additionally, inadequate human resources was mentioned by another participant as a challenge to developing collaboration as there weren't enough staff to facilitate group work.

The challenge that I have picked up was when they are in a group you are not sure who gave which information because its group work. So when they are presenting group work then you're not sure whether it's their own opinion or how did they contribute to the group and all those things. (Senior lecturer, interview)

It's sometimes difficult to pick up who in the group is not [contributing] – because again it depends on, we don't always have manpower, we don't always have enough facilitators in the class. (Associate lecturer, interview)

Students need to see the value of the learning that goes further than mark output. Collaborative learning activities promote learning goals rather than performance goals. Being able to work with diversity (different cultural backgrounds, opinion or individuals) is a valued aspect of collaborative work. Appropriate assessment aids to evaluate collaborative learning activities would assist lecturers on assessing students' ability to collaborate.



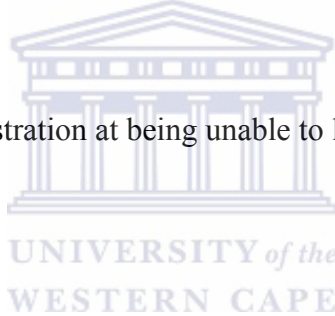
In the clinical environment, fourth year students expressed patient loads as a barrier to developing skills in collaboration.

The thing that I found that also is detrimental to the whole collaboration process is that as students we often don't have time to go and ask or speak to an OT or a speech therapist or a dietician because depending on your condition and the place where you are, they often overload you or give you too much patients so then you don't have time to go and learn about the various aspects of healthcare and of healthcare professions. (Fourth year student, FGD)

I was encouraged twice to go to the OT department and I didn't go once just because I didn't have 15 minutes in my day to do it because I was too busy and there were too many things to do. (Fourth year student, FGD)

The same thing happened to me, we were encouraged to go sit in on an OT session and go with the dietician to go watch them do the NG tube or whatever. But every time we asked it was is your patient load finished? You have to see 12 patients first before. And so then that was a barrier to us actually going to experience. (Fourth year student, FGD)

One student expressed frustration at being unable to learn or observe from other healthcare professionals.



It frustrates me because it's a learning environment, so give me an hour a day, or not a day, give me an hour in a week to go and familiarise myself with certain things. But I don't think the clinician would be on the same page as a lecturer in the sense that they would think of something like that or allow it. (Fourth year student, FGD)

Clinical placements are meant to be a learning environment for students. The students requests for time to learn about other healthcare professionals would better prepare them for the role of collaborator. Increased patients loads strongly came across as a barrier to developing collaboration.

4.11. Summary

This chapter presented the findings of the study as gathered from a variety of sources, including curriculum documents, student focus group discussions and interviews with lecturers. It reported on the learning outcomes as they related to collaboration in the teaching space and clinical placements. Group work and interprofessional education are associated with collaborative development but the learning objectives of the tasks within modules should be clearly defined and aligned for better understanding from student.

The clinical setting is an ideal learning environment to develop interprofessional collaborative competencies. Unfortunately, increased patient loads were a major contributor for a loss in interprofessional learning opportunities as well as the attitudes of the clinicians towards collaborative practice. Clinicians should be aware of the influence they have on interprofessional learning and towards collaborative development among undergraduate students. A need exists for other healthcare professionals to be aware of their own behaviour as collaborators as students learn from observation.

Areas that need development to improve students' collaborative competencies included understanding of roles and responsibilities of health professional, communication, confidence and conflict management. These are essential for effective collaboration particularly in healthcare teams.

The next chapter discusses the findings of the thesis.

Chapter Five: Discussion

5.1. Introduction

This chapter discusses the findings from physiotherapy module outlines in its relation to developing collaboration. It also discusses the educational experiences of undergraduate physiotherapy students on how they are being developed to collaborate as well as the perspectives of the physiotherapy educators on how they are developing collaborative competency among their students. This discussion aims to interpret the data in order to answer the question: “how are UWC undergraduate physiotherapy students being prepared for collaborative work as part of their professional development?”

It will also seek to determine if collaboration in this department could be developed in healthcare education. The main themes that were identified were: Collaboration and its significance to student learning; Collaboration, learning and the curriculum; Interprofessional education; Multidisciplinary teamwork and role modelling.

5.2. The importance of collaboration and significance to student learning

Collaboration was defined as the people (or teams of people) working together towards a shared goal. When collaborating, there is symmetry and low division of labor between partners (Dillenbourg, 1999). Symmetry characterizes the associations between participants within collaborative work (Roberts, 2005). Participants in both the student focus group discussions provided some insight into how they conceived of the concept,

stating that collaboration is a working together towards shared goals. As one student explained it “*Usually when people collaborate, they bring their own unique ideas or they impart a bit of themselves into the project they are working along with others*” (fourth year student FGD). This idea of collaboration as putting part of yourself into a project is a powerful idea when thinking about the concept.

The significance of collaboration was centered around learning gains, personal development and its impact on patient outcomes through interprofessional teamwork. Participants were of the opinion that collaboration was also important for the dissemination of information as it related to peer learning. Sharing of information within health professional teams was also identified as a key concept towards collaborating by Frank et al. (2014). Students in a study by Hammer-Chiriac (2014) also suggested that the sharing of information was beneficial when working with others, as it enhanced their academic learning. Masters students have also stated that collaboration allowed them to learn from their peers, and in so doing, developing critical thinking (Brown & McIlroy, 2011; Roberts, 2005).

Students in this study reported that collaborating resulted in improved personal development. They voiced that collaborative activities developed openness through addressing constructive criticism and negotiating opinions, key elements to effective collaborative learning (Dillenbourg, 1999; Roberts, 2005). The students statements also alludes to respecting and valuing diversity and opinions, a learning outcome highlighted in the Professional Ethics module, which are both important for collaboration notably

when it comes to effective interprofessional engagements (Frank et al., 2014; IPEC, 2011). For students in this study, they felt a sense of validation when their contributions in the patients' health outcomes were acknowledged by other members of the healthcare team. With positive feedback, students are more likely to engage in interprofessional collaboration.

5.3. Learning outcomes related to collaboration

In the physiotherapy module guides, learning outcomes related to developing competency as a collaborator included: demonstrating empathy towards patients; being able to describe the holistic and multidisciplinary management of patients; communicating effectively; having respect for diversity; and conflict of interest. These were the foremost learning outcomes that will be discussed, since they are most closely linked to collaboration, particularly in healthcare education (Frank et al., 2014; IPEC, 2011; Suter et al., 2009). The students and lecturers perspectives will be discussed in conjunction with these learning outcomes.

Empathy towards patients is fundamental and is outlined as a key competency for the role of Communicator in the CanMEDS framework (2014). However demonstrating empathy towards patients wasn't strongly voiced in those words by students and yet one student reported that being invited to observe his patient's surgery helped him become more empathetic. Students agreed that involving their patients in the decision making process around treatments and in general "putting their needs first" was important. In

contrast to this, nursing and medical students had demonstrated a decline in patient empathy, ironically in an era where patient-centeredness (Hojat et al., 2009; Ward, Cody, Schaal & Hojat, 2012). On the basis of the evidence available, it seems fair to suggest the students represented in this study have a firm grounding towards patient-centeredness and care.

Within the interprofessional environment, conflict of interest may ensue over professional expertise, abilities and leadership disparities (IPEC, 2011) and as a collaborator, should be managed respectfully (Frank et al., 2010). The view that students need to be able to deal with conflict rather than simply avoiding it was shared by a lecture and was in line with students perceptions of themselves. To elaborate students felt unknowledgeable on addressing conflicting issues either in the clinical setting or the classroom. Having said that another student proposed that mediation would assist in the development of abilities around conflict resolution. Conflict resolution, management and prevention are strongly etched in the role of Collaborator and on patient outcomes (Frank et al., 2014; MDB, 2014; NPAG, 2009). When presented with a conflicting opinion that may impact patient health outcomes negatively, it is reasonable to state team members have the responsibility to address it for patient safety. Students in this study need to recognize they are part of the healthcare team and as such need to be able to voice their opinion without fear of conflict. Considering the results, it is not unreasonable to say that with a lack of conflict management skills, students will be underdeveloped in the role of collaborator within healthcare teams for future practice. In

light of this, developing effective communication skills would better prepare students to manage conflicting issues and is supported by Suter et al. (2009).

To follow through, communication (verbal and written) was emphasized by a few lecturers as fundamental to collaboration and is prominent in the literature for interprofessional teamwork and collaboration within the clinical setting (IPEC, 2011; Suter et al., 2009). Students themselves felt they did not receive good communication at clinical placements either from the clinician or other members of the healthcare team and this could potentially compromise safety around patient care (Frank et al., 2014). Equally important, third year students explained that communicating with lectures could be challenging as lectures may not always be able to convey their knowledge in terms they could understand. Constructive alignment of curriculum may be a means of developing better understanding between students and lecturers. By clearly outlining intended learning outcomes, appropriate learning activities and assessment tasks at the outset of modules, both students and lecturers would be on the same level of understanding on objectives of module (Biggs, 1999; Biggs, 2003). Students themselves will adopt a deeper approach to learning, constructing knowledge (Biggs 1999).

To describe the multi-disciplinary management of patients, students would need to have an understanding of the roles and responsibilities of other health disciplines, which has been described as a key competency to collaborating (Frank et al., 2014; MDB, 2014; NPAG, 2009). The module guides for this physiotherapy department did not include any explicit learning outcomes that related to multidisciplinary roles in the health team. This was borne out by the fact that some fourth year students reported that they did not have a

clear understanding of the role of other healthcare professionals while on clinical placement. Is it reasonable to expect students to develop competency in collaboration if they lack development in an enabling competency for collaboration (Frank et al., 2014; MDB, 2014; NPAG, 2009) as well as work as interprofessional collaborative healthcare workers (IPEC, 2011)? One lecturer articulated this well “*if they [the students] do not have the information of what other healthcare professionals are doing, it will be difficult for them to refer or to collaborate.*” To put it in another way, to be able to draw on the “strengths” of other healthcare professionals towards improved patient outcomes, a firm understanding on the roles and responsibilities is necessary.

To some degree, the learning outcomes have included some aspects of the enabling competencies to develop collaboration as well as those of the role of Professional, Communicator, Health Advocate and Scholar. However they appear to have fallen short on developing students understanding of roles of healthcare professionals and conflict management. Structured interprofessional activities particularly within the clinical setting may be a means to develop role understanding and conflict management within the healthcare context and is supported widely in the literature (Doucet et al., 2013; Newton et al., 2012; Nisbeth et al., 2008; O’ Carroll et al., 2012). In view of this, IPE and collaborative learning activities associated with developing collaboration are discussed next.

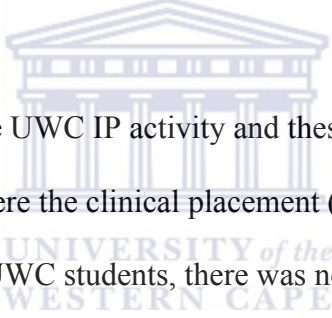
5.4. Learning activities associated with collaboration

5.4.1. Interprofessional education

Interprofessional education has been outlined as an approach to developing students so that they become more effective members of interprofessional teams. Students trained in this approach would be more likely to become collaborative interprofessional team members (Bridges, Davidson, Odegard, Maki & Tomkowiak, 2011). An interprofessional extracurricular activity has been introduced into the Faculty of Community and Health Sciences according to an Associate Professor in this department. The structure of the activity discussed included students from various disciplines working together through case reports and, as the Associate Professor explained, students should be able to identify roles of health professionals and develop some communication skills. Students (fourth year FGD) verbalized they did not find the IP activity as beneficial to their learning nor did they see the value in the interprofessional modules presented in their first and second years of study. They expressed it as “a waste of time” and cooperated in order to complete tasks; they did not see the relevance for future practice. Students may be able to construct knowledge and understanding of the IP modules if the department aligned learning activities to achieve desired learning outcomes i.e. collaboration (Biggs 1999; Biggs 2003). Both students and lecturers should have clear understanding of learning objectives for clarity on learning tasks (Biggs, 1999; Biggs, 2003).

Yet the views of the students in this study are in contrast to what the literature elucidates.

O'Carroll et al., (2012) & Mellor et al., (2013) reported on student experiences on an IP learning activity in the clinical placement that involved students from various disciplines working through case scenarios. Students in both studies found it beneficial to developing an understanding of the roles and responsibilities of other healthcare professionals, including the development of improved confidence to learn with students from other professions and reinforcing the importance of effective communication for teamwork (O'Carroll et al., 2012; Mellor et al., 2013).



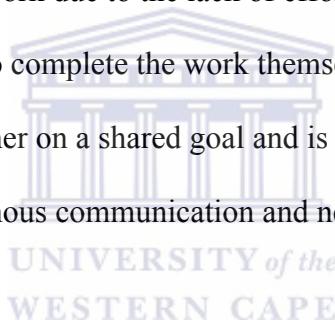
The difference between the UWC IP activity and these studies was the setting of the IP learning modules which were the clinical placement (O'Carroll et al., 2012; Mellor et al., 2013). Similar to the UWC students, there was no assessment for students in the study by O'Carroll et al. (2012). By removing the assessment factor, students were able to interact without fear of losing marks; explore their own understanding and knowledge and approach their peers without feeling a sense of inadequacy (Mellor, 2013) views not shared by the students of the current study.

As suggested by a student in the current study, interprofessional learning opportunities, either through interaction or observation, within the clinical environment should be incorporated within the clinical settings, even if learning is for a limited time (one hour a week). Given this information coupled with the literature, introducing interprofessional student interactions within the clinical setting would promote interprofessional learning

and without any formal assessment it would encourage learning gains versus performance gains.

5.4.2. Group work

Group work was one of the first learning activities that students in this study associated with developing competence to collaborate in the learning space. This method was visible in all modules but the format of the group work varied requiring more in-depth involvement of students in some modules compared to others. Students were not always enthusiastic about group work due to the lack of effort by some group members, resulting in them having to complete the work themselves. Collaboration is defined by individuals working together on a shared goal and is further characterized by low division of labor, synchronous communication and negotiability (Dillenbourg, 1999).



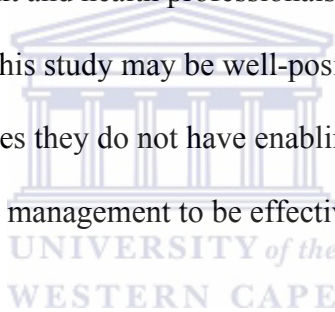
Despite this, there is no clear assessment outlined for collaborative effort in group work as noted by lecturers. They expressed the difficulty of establishing the contributions of individuals within the group, although some modules do reflect the use of peer evaluations. In response, students voiced that peer evaluations should be done more regularly and carry more bearing within group activities and not merely be used at the end of the group task. Lecturers should provide early and frequent support and feedback on the structure and processes around group activities, lest students feel a sense of being abandoned in their groups (Brown & McIlroy, 2011). While peer evaluations encourage students to become active rather than passive recipients, there are questions related to the reliability and expertise of peer assessors, including power relations that project a

negative response to it (McGarr & Clifford, 2013). To negate poor response to peer evaluations from students, lecturers should inform students on the rationale for peer evaluation and familiarizing them with the peer evaluation process.

Interprofessional education and group work were recognized as activities to develop collaborative competencies. Although students in this study recognized the value of health professionals collaborating, they did not perceive the value in the IPE modules as transferable for future practice. To add on, they lack opportunities for collaborative development even though they are well-placed for interprofessional teamwork. Perhaps a better alignment of learning outcomes and activities would better develop student understanding on the value of IPE modules. Furthermore, interprofessional collaborative learning opportunities could be better collaborated between institution and clinicians to promote the development of students. Group work was identified as a collaborative activity yet students displayed a lack of enthusiasm due to “social loafing” and “free riding” of some students. Peer evaluations is a means of motivating and assessing collaborative capabilities in group work but should be well explained to students.

5.5. Multidisciplinary teamwork and role modeling

Patient-centeredness within non-hierarchical multidisciplinary teams would impact health outcomes and health systems positively (Frenk et al., 2010) as well as emphasized strongly by students in the study. Students felt that collaborating with the patient when making healthcare decisions was important and also instilled a sense of trust in the student-patient relationship, which is in keeping with the idea that a multidisciplinary team should be based around patient-centered care (IPEC, 2011). As noted by the IPEC (2011) patient-centeredness is the purpose behind IP/MD teamwork and the lack of relationship between patient and health professionals, IP collaboration has little rationale. The students in this study may be well-positioned to work in teams but the foregoing discussion implies they do not have enabling competencies i.e. role understanding and conflict management to be effective collaborators.



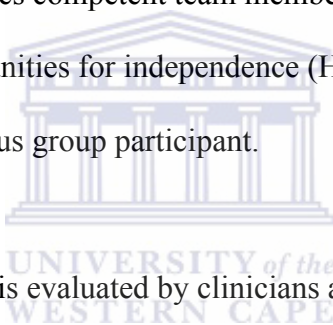
Early exposure to the clinical environment was also identified as being beneficial to the students' development of collaborative competencies within the MDT. Morris & Hilton (2001) also supported clinical placements as ideal learning environments to develop interprofessional collaboration. In particular, ward rounds were classified as an interprofessional learning activity by Hilton & Morris (2001). However, some students in this study stated that they didn't feel a sense of inclusion within ward rounds, and in some instances, described needing to "sneak in" in order to be involved. Other students had the experience of some health professionals speaking amongst themselves during their ward rounds, and therefore excluding students and patients. Using professional

jargon creates a barrier to effective communication within interprofessional teams (IPEC, 2011; White, 2007). It can be acknowledged that implementing changes within organizational system may be challenging due to long standing professional hierarchies that create a barrier to effective healthcare team collaboration (IPEC, 2011; Pollard, 2008). Perhaps increasing student awareness on how organizational systems influence interprofessional collaboration should be an aim of IPE (Pollard, 2008).

Besides multidisciplinary interactions, students can learn interprofessional collaboration through observation in the clinical environment (Pollard, 2008; Sheldon et al., 2012), in particular via the role modeling of clinicians (Hilton & Morris, 2001; Milder et al., 2014; Sheldon, 2012). Lecturers in this study agreed that some clinicians who students were exposed to could be good or bad role models in terms of learning how to collaborate with others. One lecturer was of the opinion that clinicians remained in their professional silos and may not encourage collaboration, and another stating that multidisciplinary collaboration did not occur much in the clinical setting. In the absence of engagement within multidisciplinary teams, students' learning opportunities are compromised (Ramklass, 2009). In an attempt to address this issue, the academic staff of the physiotherapy department could liaise with the clinicians within the clinical setting to identify interprofessional activities that physiotherapy students could engage in for their development.

Significantly noted by students in this study, the feedback, and the confidence the clinician showed in them influenced their collaborative abilities. Furthermore the

clinician's own self-confidence within multidisciplinary teams was verbalized by the students as having importance towards their ability to collaborate. That is to say if the clinician was fearful to contribute in interprofessional meeting, this behavior could be learnt by the student. The majority of students who observed occupational therapist and physiotherapist collaborating with each other stated they were positive role models for highlighting the value of interprofessional care (Sheldon et al., 2012). The skills of the clinician were also noted as having importance for IP learning opportunities (Hilton & Morris, 2001). When clinician's skills were underdeveloped in areas of: faith in their own abilities and themselves competent team members, students were thought to be unsafe, with fewer opportunities for independence (Hilton & Morris, 2001) an observation noted by a focus group participant.



Working as part of a team is evaluated by clinicians at clinical placements and encouraged by clinical supervisors. However students noted that there was very little opportunity for interprofessional interactions in some clinical placements due to increased patient workloads, views shared by physiotherapy students from another South African university (Ernstzen, Statham & Hanekom, 2014). Clinical placements provide learning opportunities to develop understanding of roles and responsibilities of healthcare professionals, communication, confidence and breaks down professional silos (Bridges et al., 2011; Mellor et al., 2013; O'Carroll et al., 2012). In order to take advantage of interprofessional learning opportunities, faculty would need to engage clinical staff at placements on opportunities for student development

5.6. Skills to develop collaboration

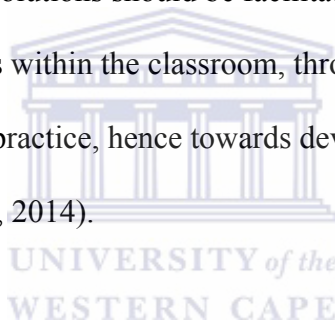
Lecturers in this study identified that communication; confidence and conflict management were important skills that students should have in order to develop the ability to collaborate. Effective communication, both verbal and written, are necessary for efficient interprofessional collaborative teamwork (IPEC, 2011; Kelland et al., 2014; Suter et al., 2009) and is an enabling competency for collaboration in the broader context of health professional practice (Frank et al., 2014; MBD, 2014; NPAG, 2009).

Confidence is an important precursor to IP collaboration (Pfaff, Baxter, Jack & Ploeg, 2014) but this is sometimes lacking in students, as was observed by a lecturer in this study. Interprofessional activities in a non-threatening environment can develop students' self-confidence (Mellor et al., 2013) and this confidence can influence the student's ability to communicate and collaborate within IP teams (Nisbet et al., 2008). With poor confidence, students will not be able to communicate ideas within groups and interprofessional teams hence making it difficult to collaborate.

Conflict management is an important aspect of effective collaboration (IPEC, 2011) and is a key competency for developing the role of Collaborator (Frank et al., 2014; MBD, 2014). This requires negotiability and a willingness to listen and respect the opinions of others (Mellor et al., 2013) and was also alluded to by a fourth year student. When conflicts are not resolved in an approach of maturity and respect (Mellor et al., 2013) it can influence the learning experience negatively. On the other hand, a fear of conflict as acknowledged by a lecturer in the students and by the students themselves, can also

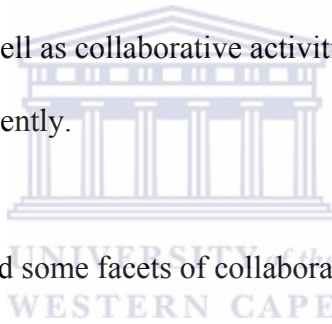
contribute negatively in terms of being afraid to present a conflicting view point in the interprofessional team due to professional hierarchies which can subsequently impact patient safety and care (IPEC, 2011).

Based on the findings, student are open to the concept of listening to differing opinions yet are hesitant in addressing conflicting issues within interprofessional interactions or group work. A means to develop conflict management skill was suggested by Borg et al., (2011) who recommended that a group contract may be a means to prevent conflict and should conflict arise, solutions should be facilitated by the lecturer. Developing conflict management skills within the classroom, through structured group work could be transferable to clinical practice, hence towards developing collaborative competencies (Frank et al., 2014).



5.7. Summary

The results in this study, presents how students were being prepared for collaborative work as part of their professional development. Students have a keen understanding of what collaboration and relevance to healthcare but lack understanding of roles and responsibilities of healthcare professionals which has been identified as an enabling competency for the role of Collaborator within interprofessional teams. In this study, it was the students' confidence and conflict management abilities that were lacking and should be better improved. The clinical environment and interprofessional education are potent avenues to producing physiotherapy graduates with interprofessional collaborative abilities as well as collaborative activities such as group work and should be made use of more efficiently.



Although modules included some facets of collaboration, they lacked depth and coherency within and between their learning outcomes, activities and assessment strategies. Constructive alignment of curriculum could address lack of understanding of concepts around collaboration and improve its development such as role understanding, conflict management and confidence which also emanates from good communication skills. Structured peer assessments, group contracts and facilitation may be ways to motivate students to participate in collaborative learning within the classroom. However, students do have a firm understanding of patient- centeredness within healthcare which has been outlined as significant in literature towards improved health systems a foundation to developing other fundamental competencies to collaborate.

Chapter Six: Conclusion

6.1. Introduction

This chapter presents the summary, conclusion, significance of the study and recommendations for the development of collaborative competency.

6.2. Summary

The development of core competencies through healthcare education has been emphasised as a means to address the struggle of health systems. For the purpose of this study, the development of collaboration was explored in greater detail. Hence this study sought to answer the question: How are UWC physiotherapy students being prepared to work collaboratively as part of their professional development? It sought to do this by analysing the most updated curriculum module outlines, perceptions of students and educators related to the development of collaboration in the UWC physiotherapy department. The significance of this study rests in the value of student and educator opinions to appraise curriculum and professional development in the changing healthcare context.

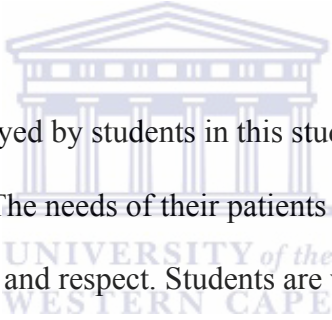
The literature review established the importance of collaboration including the competencies to develop collaborative work. Collaborative competencies are significant for interprofessional teamwork as well as critical thinking, an attribute all UWC graduates should possess. Collaborative learning and IPE were established as methods to develop collaborative competencies. There were no studies on how collaboration is

developed among undergraduate physiotherapy students within the South African context. The CanMEDS framework (Frank et al., 2014), HPCSA core competency guidelines for undergraduate medical and dental students (MDB, 2014) and the essential physiotherapy competency profile (NPAG, 2009) informed the Pedagogical framework of the study.

A descriptive qualitative design was employed utilising document analysis of module outlines, focus group discussions and semi-structured interviews. The sample included module outlines (n=16), third (n=6) and fourth (n=6) year physiotherapy student (focus group discussions) and lecturers (n=7) (semi-structured interviews). The UWC physiotherapy department provided the research setting for the study. Appropriate ethical clearance was considered for entrance into research setting and to ensure confidentiality of all participants. Data was analysed using inductive content analysis.

This study reported on the learning outcomes as they related to collaboration within the teaching space and clinical placements. Although group work and interprofessional education were associated with collaborative development, the learning objectives of the tasks within modules should be clearly defined and aligned for better understanding from student (Biggs, 1999; Biggs 2003). Appropriate assessment strategies of group work, such as peer-evaluations, would motivate students to work collaboratively, negating “social loafing” and “free riding”.

Areas that need development to improve students' collaborative competencies included understanding of roles and responsibilities of health professional, communication, confidence and conflict management. Although clinical placements have been identified as a possible learning environment to develop collaborative competencies, students identified increased patient loads as a major contributor for a loss in interprofessional learning opportunities as well as the attitudes of the clinicians towards interprofessional collaborative opportunities. As identified by lecturers and supported by literature, students should also develop skills around communication, conflict management and confidence.



A noticeable feature displayed by students in this study was them engaging patients in the collaborative process. The needs of their patients were central to management especially developing trust and respect. Students are well situated to be part of interprofessional teams but could be better developed towards collaborative practice.

6.3. Conclusion

Physiotherapy undergraduate students demonstrate a lack of development towards collaborative work. Firstly, they lack a clear understanding of the roles and responsibilities of healthcare professionals. This understanding has been highlighted as an enabling competency towards developing the role of Collaborator as outlined in the Pedagogical framework (Table 1, pg. 15). It has also been outlined as an explicit feature of interprofessional collaborative practice (IPEC, 2011). Developing an understanding of

the roles and responsibilities of healthcare workers within IPE is emphasised (Doucet et al., 2013; Mellor et al., 2013; Nisbeth et al., 2008). Despite the fact that the university is offering IPE modules, it isn't enhancing physiotherapy students understanding of interprofessional roles and responsibilities as such this lack of knowledge would not be transferred to clinical practice.

Secondly, the students are inadequately prepared to address conflict i.e. prevention, management and resolution. Besides being important for the role of Collaborator (Table 1, pg. 15), conflict management has been highlighted for collaborative work (Dillenbourg, 1999; Roberts, 2005). The development of this key competency has also been outlined within IPE studies (Doucet et al., 2013; Mellor et al., 2013).

Physiotherapy students in this study “run away” from conflict or felt inadequately developed to handle conflict within the classroom through group activities or through IP interactions within the clinical setting. The fact that the group of students represented in this study lack or avoid conflict, questions their ability to be effective members of the healthcare team through collaborative practice.

Lastly, students lack confidence and effective communication skills, both important for effective collaboration (IPEC, 2011; Suter et al., 2009). Despite students valuing listening and communicating with the patient, they do not exhibit confidence to communicate their opinion within the clinical environment. Although this study demonstrated that undergraduate physiotherapy students are well-positioned to participate in collaborative interprofessional teams it has demonstrated the lack of

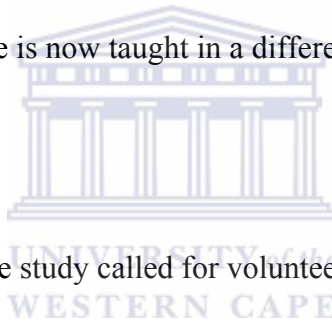
development for collaborative work. As such physiotherapy students are inadequately developed for interprofessional collaborative practice and this may have negative impact on the health outcomes of patients.

6.4. Significance

The outcomes of this study could provide the physiotherapy department, institution and faculty with opinion into which learning activities best develop physiotherapy students' collaborative competency. It has also stressed the need to better align the learning outcomes with the appropriate learning activities as well as suitable assessment tasks that reflect learning outcomes (Biggs, 1999; Biggs, 2003). Physiotherapy students also need to see the value in the learning gains of activities and tasks, not merely working towards performance gains. This study has also demonstrated that there should be a better collaborative relationship between the physiotherapy department and clinicians for students to have optimal learning opportunities on interprofessional collaborative work. The findings of this study may have significance for curriculum development henceforth, producing graduates who have competency to collaborate across professions within healthcare teams.

6.5. Limitations to the study

There were some limitations to this study, which are discussed next. The module outlines that were used in this study were representative of the 2013 and 2014 academic years and included learning activities that were no longer being utilized by the department. This had the effect of presenting some aspects of teaching and learning practices as if there were currently being implemented, when this was not the case, and may have distorted the interpretation of some of the results. For example, some students made reference to activities conducted as part of one of these modules (Applied Physiotherapy 1), which seemed positive in the context of developing collaboration. However, since the module is now taught in a different way, the students' quotes needed to be read in that context.



In addition, the fact that the study called for volunteering of students and lecturers for the focus group discussions and interviews may present a self-selecting bias and thus the opinion presented in these results may not be representative of the entire population being studied. Purposive sampling with a larger sample population is a means to better represent views and opinions by eliminating bias that comes from non-probability sampling.

6.6. Recommendations

There are a number recommendations based on the findings of this study.

Constructive alignment of curriculum would better develop students to collaborate. In other words, curriculum should demonstrate clear learning outcomes, appropriate learning activities and assessment tasks should reflect learning outcomes (Biggs, 1999; Biggs, 2003). The curriculum alignment should target IPE modules for students to identify the value in them. It should seek to improve students understanding of the roles and responsibilities of healthcare workers (Mellor et al., 2013) and skills in communication (Suter et al., 2009), confidence and conflict management (Hammer-Chiriac, 2014).

Based on the literature and the research findings, it's recommended to the faculty that IP learning activities between students from various disciplines occur in the clinical setting as students' would view it as transferable for clinical practice.

The student responses indicate that there should be a collaborative relationship between the department of physiotherapy and clinicians, with the latter being educated on the challenges facing students in developing collaborative competency such as increased patient loads. It increased awareness among clinical staff on the learning outcomes of clinical practice could improve interprofessional learning opportunities for undergraduate physiotherapy students.

6.7. Future research

An assessment tool should be developed to evaluate collaborative competency as there are none as stated neither by the lecturers nor in the literature.

A study on a larger scale including all undergraduate healthcare students at the University of the Western Cape would be a better representation of the development of collaboration competencies of health professional students at the institution.



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Appendices

Appendix 1 Module outline data sheet

	Module	Year	Learning outcomes related to collaboration	'Activities' to develop learning outcomes associated with collaboration	Assessment of the learning outcome associated to collaboration	"Activities" not associated with learning outcome



Appendix 2: Focus group discussion question guideline

Focus Group discussion outline using Pedagogical framework

1. Please think about collaboration. What comes to mind?
2. How important is collaboration in physiotherapy?
3. Why is it important?
4. How is collaboration included in the curriculum? How are you being developed to collaborate with others?
5. Do you understand the roles of different health Professionals?
6. Do you collaborate with other Health Professionals during your clinical rotations?
 - a. Probing question on collaboration with other healthcare professionals
 - b. Describe the nature of this collaboration.
 - c. What have your experiences with these collaborations been?
 - d. How have they contributed to your development?
7. What are some of the difficulties you've encountered in collaborating with others?
8. How can collaboration be better integrated in your learning, either in the classroom or the clinical context?
9. Is there anything else that was not discussed that you think is important for the development of collaboration?

Appendix 3: Semi-structured interview questions

Semi-Structured interview outline using Pedagogical framework

1. How many years have you been a qualified physiotherapist?
2. How many years have you been involved in the education of physiotherapist?
 - 2.1. In which context? Clinical or lecturing?
3. What do you understand by collaboration?
4. How important do you believe the development of collaboration is in physiotherapy education?
5. How do you facilitate the development of collaboration amongst physiotherapy students?
6. How do you assess the development of collaboration in your modules?
7. Do you perceive any limitations to facilitating collaboration?
8. Is there anything else that has not been discussed that you think is important for the development of collaboration in physiotherapy education

Follow – up questions

1. Are there any skills you think are important for developing collaboration?
2. Do you think clinicians at clinical placements influence the development of collaboration amongst students? Please elaborate on your answer.

Appendix 4

INFORMATION SHEET

Project Title: Exploring the development of collaboration amongst Undergraduate physiotherapy students at the University of the Western Cape

What is this study about?

This is a research project being conducted by Janine Manilall at the Department of Physiotherapy at the University of the Western Cape. You are being invited to participate in this research project because you are a student of the department and your perceptions and understanding around collaboration will provide valuable insight.

Collaboration is a valuable competency for improved patient outcomes. The purpose of this research project is to explore the development of collaboration in physiotherapy education. The knowledge gained from this study may be providing recommendations changes for physiotherapy education.

What will I be asked to do if I agree to participate?

You will be asked to participate in a focus group discussion that will be conducted at the UWC physiotherapy department at a time that is convenient for you. Focus group discussions will be audio recorded to ensure accurate data capturing. Focus group

discussions will not take longer than 60 minutes. Students perceptions on collaboration will be explored in terms of your understanding of collaboration and if or how you develop this in learning.

Would my participation in this study be kept confidential?

All personal information will be treated confidentially. To further ensure your anonymity, personal identifiable details will not be gathered. All focus groups will be audio recorded to ensure your contribution is accurately recorded. All information will be coded through an identification key that will only be accessible to the researcher.

All information collected will be held in a safe, secure location which only the researcher will have access with digital data being stored on a password protected computer. This study will use focus groups and the extent to which your identity will remain confidential is dependent on participants' in the Focus Group maintaining confidentiality. A confidentiality form will be given to each participant to ensure this.

What are the risks and benefits of this research?

There may be some risks from participating in this research study. All human interactions and talking about self or others carry some amount of risks. We will nevertheless minimise such risks and act promptly to assist you if you experience any discomfort, psychological or otherwise during the process of your participation in this study. Should your participation impact you negatively, please feel free to discuss this with the researcher.

Your participation would contribute to the understanding of how collaboration is being developed in physiotherapy. Results from the study may aid in curriculum development of competency in collaboration.

Do I have to be in this research and may I stop participating at any time?

Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized.

What if I have questions?

This research is being conducted by Ms Janine Manilall at the Department of Physiotherapy at the University of the Western Cape. If you have any questions about the research study itself, please contact Ms Manilall at:

Cell: 079 747 0049

Email: janine.manilall@gmail.com

Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please contact:

Research Supervisor:

Dr. Michael Rowe

University of the Western Cape

Private Bag X17, Belville 7535

Telephone: (021) 959 2542

Cell: 072 514 2309

Fax: (021) 959 1217

Email: mrowe@uwc.ac.za



Dean of the Faculty of Community and Health Sciences:

Prof José Frantz

University of the Western Cape

Private Bag X17

Bellville 7535

chs-deansoffice@uwc.ac.za

This research has been approved by the University of the Western Cape's Senate Research Committee and Ethics Committee.

Appendix 5

Focus group discussion consent form

Title of the Research Project: Exploring the development of collaboration amongst undergraduate physiotherapy students at the University of the Western Cape

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

___ I **agree** to be audio-taped during my participation in this study.

___ I **do not agree** to be audio-taped during my participation in this study.

Participant's name.....

Participant's signature.....

Date.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Ms Janine Manilall

University of the Western Cape

Cell: 079 747 0049

Email: janine.manilall@gmail.com



Appendix 6

Interview consent form

Title of the Research Project: Exploring the development of collaboration amongst

Undergraduate physiotherapy students at the University of the Western Cape

The study has been described to me in language that I understand and I freely and voluntarily agree to participate. My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

I **agree** to be audio-taped during my participation in this study.

I **do not agree** to be audio-taped during my participation in this study.

Participant's name.....

Participant's signature.....

Date.....

Should you have any questions regarding this study or wish to report any problems you have experienced related to the study, please contact the study coordinator:

Ms Janine Manilall

University of the Western Cape

Cell: 079 747 0049

Email: janine.manilall@gmail.com



Appendix 7

FOCUS GROUP CONFIDENTIALITY BINDING FORM

Title of Research Project: Exploring the development of collaboration amongst undergraduate physiotherapy students at the University of the Western Cape

The study has been described to me in language that I understand. I understand what my participation will involve and I agree to participate of my own choice and free will. I understand that my identity will not be disclosed to anyone. I understand that I may withdraw from the study at any time without giving a reason and without fear of negative consequences or loss of benefits. I agree to be audio recorded during my participation in focus group. I understand that confidentiality is dependent on participants' in the Focus Group maintaining confidentiality. I agree to uphold to uphold the confidentiality of the discussions in the focus group by not disclosing the identity of other participants or any aspects of their contributions to members outside of the group.

___ I **agree** to be audiotaped during my participation in this study.

___ I **do not agree** to be audiotaped during my participation in this study.

Participant's name.....

Participant's signature.....

Date.....

Janine Manilall

University of the Western Cape

Cell: 079 747 0049

Email: janine.manilall@gmail.com

