Exploring the development of the effective communication graduate attribute in the clinical technology programme at the Durban University of Technology: student, graduate, and educator perceptions and experiences.

by

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DECLARATION

I, Dorcas Rosaley Prakaschandra, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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- To my boys, my greatest inspiration, for whom every sacrifice is worthwhile. I dedicate this thesis to you.

- To my Mum and sisters, CRE, for your support, encouragement, prayers, and for carrying me through every step of this journey. You are truly one of my greatest blessings.

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- To the participants of this study—the final-year students of 2024, the graduates of 2023, and the clinical and academic educators - I remain deeply grateful. I hope that our work will help to improve and enrich the learning spaces for future Clinical Technology professionals.

- In memory of my father, who imbued in me a love of learning.

Soli Deo Gloria

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GLOSSARY

Academic Educator: An academic staff member who provides formal theoretical instruction, facilitates learning experiences, and offers academic support to students in Clinical Technology through structured coursework and assessments.

Clinical Educator: A graduate clinical technologist who is appointed by DUT to provide students with clinical supervision during their clinical placements in 3rd and 4th years.

Clinical practice: A structured, supervised clinical training programme that student clinical technologists undergo in years 3 and 4 of their undergraduate degree to acquire real-life clinical experience in applying theoretical knowledge, developing technical skills, and interacting with patients and healthcare teams.

Clinical Technology: A profession that entails the use of specialised diagnostic procedures and biomedical apparatus to diagnose and provide corrective treatment for certain pathophysiological patient conditions.

Conceptions: The various ways in which individuals perceive, experience, understand, and interpret aspects of reality, or the dynamic interactions between a subject (person) and an object (phenomenon) in the real world.

Culture: The values, rituals, symbols, and practices (referring to conventions, habits, traditions, and customs).

Effective communication: The process of conveying information, ideas, thoughts, and emotions clearly and purposefully that ensures mutual understanding between the sender and the receiver. In healthcare settings, this means clear communication between all members of the multidisciplinary team and patients to best coordinate care delivery to patients.

Epistemology: A branch of philosophy that explores questions about what knowledge is, how it is acquired, what justifies belief, and the distinction between belief and truth.

Graduate attributes: The skills, knowledge, attitudes, and values that HEIs aim to develop in their graduates to prepare them for professional and social life.

Health Professionals Education: Refers to the broader Higher Education of Health Sciences or Health Professionals students, which includes medical students, medical science, health and rehabilitation science (e.g. Clinical Technology, Physiotherapy), nursing, etc.

Independent practice: A qualified clinical technologist who practices autonomously within their scope, without supervision, while adhering to ethical, legal, and professional standards of the regulatory board (HPCSA).

Interpretivist research paradigm: Seeks to understand the world through the subjective experiences, meanings, and interpretations of individuals; emphasises the social construction of reality, and recognises that knowledge is shaped by cultural, historical, and contextual factors.

Ontology: A branch of philosophy that deals with the nature of reality.

Organisational culture: Refers to the way members of an organisation interact with each other, their work and the external environment. Comparisons are made both within the organisation and with other organisations.

Paradigm: An interpretive framework or set of beliefs and practices which guides research, shapes how knowledge is understood, what methods are used to interpret data and how the data is interpreted.

Phenomenology: A research design that seeks to uncover the essence and meaning of experiences by setting aside preconceived assumptions and focusing on participants' subjective realities to determine what a phenomenon is at its core.

Purposive sampling: The selection of participants who have experienced the phenomenon and are most fitted to provide rich perspectives and meet the predetermined inclusion criteria.

Qualitative research: A scientific method, usually of non-positivist research paradigms, employed to gather non-numerical data. Includes the interpretation or meaning of a phenomenon or developing an understanding of a phenomenon.

Reflexivity: A continuous process of critically examining one’s own beliefs, biases, and influence on the research process. It involves self-awareness and reflection on how the researcher’s positionality, perceptions, experiences, and interactions shape the study’s design, data collection, analysis, and interpretation.

Rigour: Refers to the methodological precision and criteria in research to ensure high-quality, credible, and reliable findings.

LIST OF ABBREVIATIONS

AT	Activity Theory
CHE	Council on Higher Education
CPL	Clinical Practice learning
CP	Clinical practice
CT	Clinical Technologist
DHET	Department of Higher Education and Training
DOH	Department of Health
DUT	Durban University of Technology
EC	Effective communication
EC GA	Effective communication graduate attribute
FGD	Focus group discussion
GA	Graduate attribute
HBU	Historically Black Universities
HE	Higher Education
HEI	Higher Education Institutions
HPE	Health Professions Education
HP	Health Professions
HPSCA	Health Professions Council of South Africa

HREC	Health Research Ethics Committee
HWU	Historically White Universities
MDT	Multidisciplinary Team
NQF	National Qualifications Framework
SAQA	South African Qualifications Authority
UoT	University of Technology
UCT	University of Cape Town
UWC	University of the Western Cape
WEIRD	Western, Educated, Industrialised, Rich, and Democratic
WIL	Work integrated learning

ABSTRACT

Effective communication (EC) between health professionals and patients is a core clinical skill and can be developed through the EC graduate attribute (GA). However, in South Africa, despite its adoption by higher education institutions and regulatory bodies, the development of this GA is not emphasised in most medical education programmes, including Clinical Technology (CT). This is partly due to a lack of consensus on how to integrate EC development into both practical and theoretical training. The limited research on students' perceptions, particularly in the global South and within CT, calls for an exploration of the phenomenon. This study, therefore, aimed to understand how the EC GA is developed through the perceptions and experiences of final-year students, new graduates, and academic and clinical educators in the CT programme at the Durban University of Technology.

This study drew on Engeström's Activity Theory (AT). Since clinical training is situated and contextualised, it is susceptible to various influences. Encompassed within the AT is an understanding that context, in the form of the theory's components, influences how individuals experience EC development, making this theory suitable as an analytical lens. A qualitative methodology within an interpretivist paradigm was employed. This study adopted a phenomenological research design. Purposive sampling was used to select participants using three focus group discussions (ten final-year students and five new graduates) and ten semi-structured interviews (four academic and six clinical educators). The data analysis for the study was guided by Braun and Clarke's thematic analysis framework

The findings revealed four key themes: (T1) Effective Communication as a Continuous Journey, (T2) Organisational Influences on EC Development, (T3) Navigating Cultural, Linguistic, and Interpersonal Dynamics, and (T4) Adapting Communication to Professional Practice. The findings suggest that the development of EC GA, as perceived by participants, often differed from prescribed institutional standards. Key influencing factors included clinical preparation, support structures, and language barriers. Additionally, a misalignment in how EC was conceptualised between students, academics, and clinical educators created further challenges. The study also highlighted the need for a multilingual language policy to enhance students' language proficiency and provide better support in diverse clinical settings in South Africa.

This study therefore contributes to the broader discussion in health professions education about the collaborative development of GAs through authentic workplace learning, rather than sole reliance on formal instruction. This study also highlights the need for a re-evaluation of institutional policies on language, curriculum integration, and the importance of academic and clinical partnerships in conceptualising and developing the effective communication GA. Based on these findings, this study recommends introducing a formal communications module, the creation of a supportive learning environment through feedback and mentoring, revising curricula, and incorporating reflection for both educators and students to improve EC GA development.

CHAPTER ONE
INTRODUCTION

1.1 Background

In South Africa (SA), the higher education (HE) landscape has been greatly shaped by the country's complex political and social history. Before 1994, the system reflected the broader policies of apartheid and was characterised by racial segregation and inequality (Badat, 2010). The impact of this system on HE was that universities were divided into historically white institutions (HWIs) and Historically Black institutions (HBIs), resulting in stark disparities in the quality of education, funding, and distribution of resources, skewed towards HWIs (Bunting, 2006). This structure further impacted HE by embedding racial segregation and inequality within academic institutions and limiting access and opportunities for Black students.

The post-apartheid era, which aimed to address historical imbalances to meet the needs of a democratic society, made significant efforts to transform HE, including increased access to HE for previously disadvantaged groups[1], promoting equity and diversity in staff and student demographics, and restructuring the HE landscapes through the merging of various HEIs. Although this restructuring was a complex process, the Higher Education Act of 1997 (Council on Higher Education, 2000) provided the legal framework for the creation of these new, more comprehensive institutions, which combined HWIs and HBIs. This process sought to reduce duplication, increase efficiency, and promote racial integration (Gibbon & Kabaki, 2004). An example was the merger between the University of the North and the Medical University of South Africa (MEDUNSA), currently Sefako Makgatho Health Sciences University, which created the University of Limpopo. Using a similar process, the merger of former Technikons, like the ML Sultan Technikon and Natal Technikon, created universities of technology, such as the Durban University of Technology (Perumal, 2010; Gibbon & Kabaki, 2004).

[1] In the South African context, "previously disadvantaged groups" refers to communities systematically marginalised and oppressed under apartheid laws and policies, primarily encompassing Black Africans, Coloureds, and Indians. Under apartheid, these groups faced severe discrimination in multiple spheres, including limited access to quality education, economic opportunities, healthcare, and political rights. This term is widely used in post-apartheid South Africa to acknowledge and address the historical inequities faced by these communities.

After merging, universities in SA were encouraged to transform their curricula to be more inclusive, relevant, and reflective of a diverse society. In the post-apartheid era, this involved policy reforms (Africa & Education, 1997) which emphasised the need to incorporate African knowledge systems, address colonial legacies, and promote social justice. Institutions were tasked with producing graduates who not only had academic knowledge but were also socially responsible and capable of contributing to South Africa's socio-economic development. Nationally, higher educational institutions (HEIs) became responsible for the development of graduate attributes (GA) to produce employable graduates and fulfil their important social justice imperative. In this context, GAs, which refer to the skills, knowledge, attitudes, and values that HEIs aim to develop in their graduates to prepare them for both professional and social life, were introduced and aligned with the goals of equity, inclusivity, social justice, and economic development (Ramnund-Mansingh & Reddy, 2021). Through curriculum changes, SA HEIs incorporated GAs as a core part of their missions.

However, despite these policy reforms and the incorporation of GAs in many HEIs vision and mission statements, there is still a lack of conceptual clarity among educators about the term GA, both internationally (Barrie, 2006; Mahon, 2022) and nationally (Jorre de St Jorre & Oliver, 2018; Bitzer & Withering, 2020); this challenge continues to be a concern for many universities. Jorre de St Jorre & Olive (2018) and Bitzer & Withering (2020) further argue that the lack of conception among educators regarding GAs may percolate down to the curriculum level, leading to the lack of integration of these attributes into teaching and learning, which further impacts the curriculum's relevance and responsiveness to the needs of the profession. For example, in health professions education (HPE), if communication skills are viewed as an ability only to convey information, the educator might neglect essential soft skills development like teamwork and adaptability, leaving graduates underprepared for the clinical workplace context.

Currently there seems to be no consensus on how to accurately define this concept of soft skills using scientific means; however, in this study, soft skills refer to intrapersonal and interpersonal skills which influence an individual's communication proficiency (Tanković, Kapeš & Kraljić, 2021). This challenge is evident at a University of Technology (UoT) in KwaZulu-Natal, where, despite the explicit inclusion of GAs in the vision, mission, and curricula documents, there is a perception that there is not sufficient awareness among educators of what GAs are or how they can be embedded into teaching and learning practices.

In health professions education, the National Health Act of 2003 and the Human Resources for Health Strategy accentuated the need for health professionals to be equipped to address the country's burden of disease and healthcare disparities (Matsoso & Strachan, 2011). The GA agenda consequently aimed to address South Africa's unique healthcare system challenges and ensure that health professions graduates were equipped with both clinical and technical skills and were also capable of working effectively in diverse and often underserved communities (Bhagat et al., 2019). Therefore, the focus of this transformation agenda was to help shift education beyond just technical training and to develop graduates who could contribute to social and economic imperatives. Despite the major inroads made in transforming HPE, including increased access, curricula, and pedagogical reforms, the challenges persist. South Africa's multilingual landscape and multicultural society, along with increased demand for interprofessional communication and technology-mediated communication, as well as navigating between traditional health beliefs and modern medical practices in their communication, require both language proficiency and cultural competence in communication (Matthews & Naidu, 2019). These challenges, together with the lack of common conceptualisation (Tremblay et al., 2013), make these GAs challenging to achieve.

1.2 Context

In SA, the GA agenda is supported by the National Development Plan (Commission, 2013) to transform the curricula and enhance the responsiveness of HEIs to South African societal needs. In addition, the pressure for the provision of competent professionals and employable graduates from the government and the private sector has increased (Brits, 2018). Yet, the mismatch between demand and supply of graduates with the requisite skills to fuel the economy has led to HEIs including GAs aligned to their mission statements. This intention was underpinned by the notion that an understanding of GAs and the knowledge of how to develop these may shape teaching and learning in a manner that nurtures graduates who are then able to meet the needs of the communities they serve, as well as enhance employability (Brits, 2018; Bitzer & Withering, 2020). Since GAs may contribute critical aspects to a graduate's holistic education, those parts that are beyond discipline core knowledge remain challenging to articulate, develop, teach, and assess (Knewstubb & Ruth, 2015) and remain a gap in the current discourse on GAs.

This study is based at the Durban University of Technology (DUT), KwaZulu-Natal, focusing on the Clinical Technology programme, which is part of the Biomedical and Clinical Technology Department in the Faculty of Health Sciences. The curriculum is designed in such a way that students spend two years of full-time study at the UoT, where they are exposed to different teaching and assessment pedagogies, including interactive face-to-face and hybrid classes, practical activities, clinical rotations, and one experience of community engagement. In their 3rd year of study, students choose one of the seven Clinical Technology categories to specialise in (either Cardiology, Cardiovascular Perfusion, Critical Care, Neurophysiology, Nephrology, Pulmonology, or Reproductive Biology), and are placed in an HPCSA-accredited training unit, where they spend the next two years acquiring the knowledge, skills, and attributes necessary to perform as an independent practitioner after graduation. Since the clinical practice modules in the 3rd and 4th years create the link between the HEI and industry, clinical educators are appointed to mentor and assess the development of clinical skills of students in their units.

Placement in the clinical environment allows for the acquisition of both discipline-specific skills, as well as the development of interpersonal skills, critical thinking, cultural awareness, and effective communication in a real-life setting (Nyoni, Dyk & Botma, 2021). Anecdotal evidence in the CT programme suggests that not all students can develop effective communication GA adequately, as evidenced by complaints by clinical educators regarding soft skills, as well as poor written and oral communication skills in specialist and research modules. This prompted me to explore the development of this GA, to understand the experiences and perspectives of students, graduates, and educators, and to establish the current conceptualisation of this GA and the enablers and barriers to this development.

1.3 Graduate Attributes

The HE environment itself is experiencing rapid changes as societies respond to the need for alignment between the local context, national priorities and global pressures (Young, Pinheiro & Avramovic, 2024). The role of HE in forming adaptable and active citizens has been the focus of academic research, and it is now established that HEIs must prepare students for a competitive job market (Council on Higher Education (CHE), 2000), which has also rapidly evolved, catapulted by the recent COVID-19 pandemic and the Fourth Industrial Revolution (4IR) trends (Ramnund-

Mansingh & Reddy, 2021). Graduate attributes are now aligned to the modern world's tertiary education provision (Gamage et al., 2023) to support students with 21st-century skills for the professional standards of the industry (Barrie, Hughes & Smith, 2009) and to navigate and contribute to society in the world beyond the university. Internationally, GAs have also been linked with 'employability' (Barrie, 2006; Brits, 2018), as they encompass a broad range of qualities and skills that, in the health professional space, enable a graduate to develop holistically to deliver quality patient care and be equipped to thrive in a rapidly changing world.

1.3.1 Contextual challenges in developing graduate attributes

Globally, effective communication is widely recognised as a fundamental graduate attribute, particularly in health professions education (Higgs et al. 2012). Over the past two decades, there has been a significant increase in communication skills research and the implementation of communication skills programmes in entry-level medical programmes worldwide. Programmes like the CanMEDS Physician Competency Framework highlight the importance of patient-centred communication, interprofessional collaboration, and cultural competence, as well as the role of the healthcare professional as a communicator (Frank & Langer, 2003). There is also a growing international trend toward involving patients and students in co-developing communication curricula. This co-development of learning outcomes focus on communication strategies, specifically to improve empathy, relational comprehension, and patient-centred care through perceptual and cultural competency (Denniston et al. 2017)..

While studies on developing effective communication among health professional (HP) students conducted internationally could inform how effective communication can be developed, the SA context is unique and has its own set of contextual influences when compared to international contexts and makes a worthy case for exploring the development of GAs. For example, the legacy of apartheid still wields a strong influence in HE spaces in SA, perpetuating the complex power dynamics influenced by race, language, and socioeconomic status (Mgqwashu et al., 2020). While few countries internationally may have such a recent or widespread system of legally enforced segregation, power dynamics where they exist may be less likely to be influenced by their recent history (Jansen, 2023).

Although HEIs, with the support of the government, have made inroads into addressing these challenges, many HEIs still operate under severe infrastructure and resource constraints, which limits both the quality of the student learning and clinical experience (Heleta & Bagus, 2021). Furthermore, the current socioeconomic climate, characterised by one of the world's highest unemployment rates, may influence students' emphasis on acquiring skills immediately needed by industry for employment, rather than the broader GAs, which HEIs aim to develop in their graduates (Shrivastava & Shrivastava, 2014). This sociopolitical milieu further influences power dynamics and communication standards in both educational and clinical environments (Mathekga, 2012). Hierarchical relationships, shaped by culture, race, and historical oppression, may obstruct open communication between students and educators or between junior and senior professionals in therapeutic settings. Students from historically marginalised backgrounds may struggle to assert themselves or contest authority, so hindering their development of assertive and patient-centred communication skills (Kumalo, 2021). Overcoming these structural constraints necessitates more than just technical training; it involves a transition to pedagogical methods that are decolonial, critically reflective, and contextually relevant (Bozalek & Boughey, 2012). Being mindful of the influence of these factors into the graduate attribute development will lead to communication being perceived not merely as a skill, but as a socially contextualised activity responsive to South Africa's complex realities. By explicitly engaging with the sociopolitical and linguistic realities of South African HE, this study frames communication not just as a skill but as a socially situated practice, deeply entangled with issues of access, identity, and power.

Another contextual challenge when compared to international countries relates to the disparity in the quality of primary and secondary education in SA, resulting in many students entering HE with significant gaps in their foundational knowledge and skills (Subotzky & Prinsloo, 2011; Woldegiorgis & Chiramba, 2024). This heterogeneity in preparation for HE creates additional challenges for students in developing the more advanced GAs, as significant resources, which may not always be at the disposal of the HEI, need to be allocated to address these gaps before more advanced attributes may be achieved (Jansen, 2023).

Health professions education is particularly impacted by these contextual changes (Eloff & Graham, 2020). For example, the SA healthcare context exemplifies a combination of multicultural and multilingual patients and healthcare providers, which must be embraced. Currently, SA has 12 official languages; therefore, developing multilingual skills is crucial for effective healthcare delivery. In fact, it is a requirement for South African universities to implement multilingualism in

their learning and teaching programmes, as outlined by the Language Policy for Higher Education (Education, 2002). This strategy was specifically meant to ensure equity of access and success in HE, in response to previous inequality and exclusion as perpetuated by the legacy of colonial and apartheid education policies (Madiba, 2010). South Africa also has a richly diverse ethnic population, each with their own unique practices and beliefs (Adonis & Silinda, 2021). The ability to communicate in a culturally sensitive manner is one of the most important tools for high-quality, patient-centred care. An understanding of the specific communication challenges in our context would allow for the development of tailored pedagogies and interventions. This could translate into improved quality of service and therefore health outcomes across our multicultural and multilingual population (Matthews & Naidu, 2019). Additionally, in HPE, there has been an increase in the scope of practice, requiring interdisciplinary flexibility and enhanced interprofessional collaboration, in which effective communication is crucial. This increased scope is vital to address the resource-constrained healthcare environment in SA (MacDonald-Wicks & Levett-Jones, 2012).

The concerns mentioned above were somewhat addressed in the recent recurriculation processes of degrees in universities of technology (UoTs). This process began in response to the development and implementation of the Quality Enhancement Project initiated by the Council on Higher Education (CHE) (Council on Higher Education (CHE), 2000), which sought to align existing programmes with the Higher Education Qualification Sub-Framework (HEQSF) and develop new programmes. In 2020, DUT initiated the curriculum renewal project aimed at transitioning towards a student-centred university, renewal of the Programme and Qualification Mix (PQM), and the development of GAs as outlined in the DUT standards document (See Appendix 2). The learning outcomes for health professionals, defined by professional competency frameworks and regulations, are set by professional councils like the Health Professions Council of South Africa (HPCSA), with whom students and graduates in the Clinical Technology programme must register for training and then for independent practice after graduation.

The Bachelor of Health Sciences in Clinical Technology (CT) degree (BHSc Clin Tech), offered across three UoTs in South Africa, comprises four years of full-time study, which includes two clinical years (third and fourth year) in an HPCSA-accredited unit for specialisation. The curriculum is further guided by critical cross-field outcomes set by the South African Qualifications Authority (Allais, 2010). After due consultation with clinical partners, who are a major stakeholder

in training, employment and service delivery, GAs, as outlined in the DUT standards document, were then incorporated into the curriculum. Since the recurriculation, no evaluation has been conducted to understand how these GAs in the curriculum are developed or realised. Currently, the prevalent teaching and learning practices or curriculum structures are regarded as insufficient to develop these attributes due to the content being modularised and students working individually and competitively (Evans-Greenwood, O'Leary & Williams, 2015), as well as a disparate conceptualisation of what is required to deliver and monitor them by the time the student graduates; the status of how these GAs are conceptualised, developed and monitored in the CT programme is currently unknown.

1.3.2 The effective communication graduate attribute

Given the complex multicultural and multilingual South African context, cultural competency training and assessments are not adequately addressed (Madiba, 2010) nor emphasised in most HPE programmes when compared to other clinical skills (Matthews & Naidu, 2019), which could result in inadequate preparation of health professions students (Matthews & Van Wyk, 2018). Cultural competency is inextricably linked with effective communication, as it involves understanding, respecting, and responding to diverse cultural and linguistic needs, ensuring that communication is patient-centred, sensitive, and tailored to differing beliefs. Therefore, effective communication in the SA context goes beyond just simply developing good communication skills; it also requires the ability to develop strategies to engage across different languages and cultures. Language has been reported as a major barrier to effective healthcare delivery (Kemp et al., 2017), emphasising the need for effective communication to support culturally and linguistically diverse groups. While English is the fourth most frequently used language in SA, it is largely the preferred language used in healthcare settings (Lehohla, 2015). This may not adequately address the needs of the 80.2% of people being Black Africans—the majority of whom speak isiZulu (23.8%) as their home language (House & Street, 2017)—and may compromise the provision of services to patients where the clinician does not speak the patient's language.

Furthermore, there is concern that contemporary teaching and learning approaches do not always facilitate the development of a requisite level of both verbal and written communication skills, particularly for the CT programme where the curriculum has a strong practical focus (Prakaschandra, Meyer & Bhagwan, 2023). The DUT standards document on GAs (Appendix 2)

stipulates that effective communication GA is one of the five core attributes that a graduate must develop, where graduates should demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences. It is established that communication is the meta-enabler that allows for the development of other graduate qualities, including disciplinary knowledge and cultural competence (Harvey, Russell-Mundine & Hoving, 2016). Furthermore, it is also recognised that communication influences the quality of healthcare and outcomes, with linguistic and cultural disparities serving as the most significant barriers to patient-centred care. For these reasons, I have decided to focus on the effective communication GA for this study.

In the context of this study, clinical technologists, in their role as healthcare practitioners, serve as a bridge between patients and advanced diagnostic medical equipment used for patients' diagnostic testing, highlighting the need for effective communication on multiple fronts. Essentially, clear communication with the patient is necessary to collect and share pertinent information. Rapid advancements in the CT field mean that communication skills must always be adapted in line with new tools and protocols. Finally, since CT is still a specialised and relatively small but understudied sector in SA, establishing the development of effective communication can have a significant impact on the future growth of the profession.

1.4 Problem Statement

The recognition of effective communication between the health professional and patient as a core clinical skill and its association with enhanced patient satisfaction and patient safety is on the rise (Lo & Hsieh, 2020). The current literature establishes the cross-cultural challenges faced by healthcare professionals internationally (Lo & Hsieh, 2020). In the complex multicultural and multilingual SA context, cultural competency training and assessment, which are indelibly linked with effective communication in HPE, are not comprehensively addressed nor emphasised in most medical education programmes (Matthews & Van Wyk, 2018; Matthews & Naidu, 2019) when compared to other clinical skills. This results in inadequate preparation of health professional students (Matthews & Naidu, 2019). Other factors like the patient and the physical, educational, institutional, and social contexts may further influence clinical practice learning (Bates & Ellaway, 2016). For example, in the South African context, clinical practice learning may

be influenced by patient diversity, resource-constrained physical environments, varying levels of student educational preparedness, institutional disparities in infrastructure and mentorship, and complex social contexts such as language barriers.

Language has been identified as a significant barrier to effective healthcare delivery (Kemp et al., 2017; Matthews & Van Wyk, 2018), highlighting the importance of effective communication in supporting culturally and linguistically diverse populations (Matthews & Naidu, 2019). In the CT context, clinical training staff often complain that new graduates lack this attribute to function optimally in the clinical training environment. For example, a frequent complaint from academic and clinical educators is that some students cannot communicate at the appropriate level with patients, other members of the healthcare team, or both. As an academic staff member in the programme, this led me to reflect on what the possible contributors to these perceptions could be. So, although HEIs are ideally positioned to develop and equip graduates for professional and societal engagement, the question of whether these institutions can fulfil this role remains unanswered.

The HPCSA's adoption of GAs in their regulatory standards aims to develop practitioners who practice to the highest standards of care and patient safety and is common practice in healthcare training and practice worldwide. Of these attributes, especially for CT, communication is important to "o*ffer direct support and advice to other healthcare professionals in the maintenance and physiological management of patients*."[2] Despite its importance, not many studies have been conducted in HPE, specifically in CT; furthermore, there is apprehension around the insufficient development of both verbal and written communication skills, which is a characteristic of modern-day teaching and learning approaches (Parry & Brown, 2009). While effective communication has been emphasised by regulatory bodies, health professionals, and HEIs, there continues to be a dearth of literature on the conceptualisation and development of this GA specifically for CT from the perspectives of the student, new graduate, and clinical and academic educators.

The current challenges include the lack of a common conceptualisation of GAs amongst stakeholders, the lack of a theoretical foundation, and the lack of measurement of skills for GAs, particularly those in the industry (Mahon, 2022). These gaps call for an exploration of how this

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2 https://www.hpcsa.co.za/Uploads/professional_boards/rct/guidelines/Approved_Scope_of_Practice_Clinical_Technology_21_May_2020.pdf

critical GA is developed from the perspective of students, graduates, and educators. This information would be valuable in understanding how the effective communication GA is perceived, conceptualised, and experienced, which could then inform pedagogical strategies at the undergraduate level. This information could also provide strategies for ongoing professional development for new graduates and supervisors in response to the demand for employable graduates equipped with the necessary skills, values, and qualities to firstly deliver quality patient outcomes, work in the labour market to boost the economy in SA (Griesel & Parker, 2009) and thereby address the HEI's social justice imperatives.

1.5 Aim

This study sought to understand the perceptions and experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace.

Objectives:

To explore the perceptions and experiences of final-year students and new graduates regarding the development of the effective communication GA within the CT programme.

To explore the perceptions of academic and clinical educators regarding the development of the effective communication GA within the CT programme.

1.6 Research Questions

1. How do final-year students and new graduates perceive and experience the development of the effective communication GA in CT at DUT in preparation for the workplace?
2. How do academic and clinical educators perceive the development of the effective communication GA in CT at DUT in preparing students for the workplace?

1.7 Structure of the Thesis

The structure of this research project and thesis is outlined accordingly:

Chapter 1 presents the study overview, a brief introduction and background for this study, and the research problem and questions, followed by a layout of the thesis.

Chapter 2 provides the literature review of current research as well as the theoretical framework which guided the research project. A description and justification for the use of the Activity Theory (AT) is also included.

Chapter 3 describes the interpretivist paradigm and qualitative research approach, as well as justification for using phenomenology as a research design to investigate students', graduates', and educators' perceptions and experiences of the effective communication GA development. A description and justification for the use of the chosen methodology is also included. The purposive sampling strategy and semi-structured qualitative research interviews and focus group discussions as methods used for data collection were outlined. The methods for thematic analyses were described, and the strategies to ensure rigour throughout were outlined.

Chapter 4 presents the results of this study.

Chapter 5 summarises the findings of this study and offers final discussions and conclusions, including the potential application of the findings, the study's limitations and potential future research directions.

The thesis concludes with the **References** and **Appendix**, which include participant information and consent forms, HREC approval documents and gatekeeper permissions, as well as reflexivity excerpts and participant quotations.

CHAPTER TWO
LITERATURE REVIEW AND THEORETICAL PERSPECTIVES

2.1 Introduction

Chapter One provided the backdrop to the study, beginning with an overview of the purpose of HE as well as that of the South African HE landscapes. The chapter further introduced the concepts of GAs and contextual challenges in developing them, then moved the focus to GAs in HPE and then in CT. The chapter finally honed in on the effective communication GA and highlighted the lack of studies in HPE, the lack of a common conceptualisation of GAs amongst stakeholders, the lack of a theoretical foundation, and the lack of measurement of skills, particularly of those in the industry (Mahon, 2022); these gaps called for an exploration of how this critical GA is developed from the perspective of students, graduates, and educators through the problem statement.

The aim of the study was to understand the perceptions and experiences of final-year CT students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of effective communication GA in preparation for the workplace. This chapter expounds on the key concepts further emanating from the literature, as well as the theoretical framework within which this study on the experiences of the development of the effective communication GA as perceived by CT students, new graduates, and academic and clinical educators in CT at DUT was couched.

The chapter begins with a brief description of the search strategy used in the literature review, then reviews policy documents regarding GAs and outcomes at a national level (e.g., SAQA) as well as at an institutional level (the DUT standard). An overview is also provided of the skills and attributes valued in the health profession. The chapter then reviews both international and local studies on the perceptions and experiences of students, new graduates, and clinical and academic educators regarding the development of GAs in preparation for the workplace. The chapter examines research on approaches to developing the effective communication GA and culminates in the educational theories, choice, and justification for the use of the Activity Theory as a lens with which to analyse and interpret my findings.

2.2 Search Strategy

Literature focusing on evidence from January 2019 to February 2025, including meta-analysis, original research, and reviews, was searched for using Google Scholar (http://www.googlescholar.com), EBSCO (https://www.ebsco.com), Web of Science (https://www.webofknowledge.com), and PubMed (https://www.ncbi.nlm.nih.gov/pubmed). Keywords used to search for literature, independently and in combination, included [graduate attributes] AND [health sciences] AND [health professions education] AND [soft skills], as well as [employability] AND [higher education] AND [effective communication].

2.3 Higher Education, Skills Development, and Graduate Attributes

Higher education institutions have traditionally operated at the junction between government, market, and civil society, each with its own specific internal logic and expectations. The ever-changing climate of globalisation, internationalisation, and youth unemployment, which is rising in both industrialised and developing nations, has led to a reimagining of the fundamental social roles and functions of universities (Du Pré, 2009). Du Pré (2009) further claimed that the primary goal of HEIs was to align their curricula with the needs and interests of industry, the community, and society. His assertions were supported by Barrie & Simon (2006) and Bitzer & Withering (2020), who stated that universities should be concerned with the calibre of graduates they produce as well as the skills and attributes that would enable them to be productive both in the workplace and as members of society. As articulated by Walker & Fongwa (2017):

> *"Graduate education … requires an ethical framework beyond knowledge and skills which aims at improving quality of life not only for graduates but for all in the society who interact with these graduates" (p.154).*

However, notwithstanding the philosophical debates on the redefined role of a university, it was only around the middle of the 1990s that researchers began hypothesising a measurable link between HEI curricula and the development of the necessary skills for the working world (Bowden & Marton, 2003).

The concept of "skill" has been linked to the objectives and outcomes of higher education (HE) (Bester, 2014). Skills are vital for national prosperity because, by encouraging productivity and

innovation through the adoption of new technology, they can directly contribute to economic growth. According to Wheelahan & Moodie (2011),

> *"Governments worldwide are becoming more concerned with skill development, skill shortages, and skill mismatches." (pg no 1)*

While it is acknowledged that skills are a vital element of the educational process (Osmani, Weerakkody & Hindi, 2017), the mismatch between the supply and demand for the requisite skills and the subsequent skills shortages have detrimental effects on the lives of individuals and reduce the potential development of countries (Winberg et al., 2013).

In SA, the HE system has been significantly influenced by the country's intricate political and social history. Before 1994, the system mirrored the overall apartheid policies, resulting in racial segregation and inequality. In the post-apartheid era, efforts have been made to address historical imbalances and cater to the needs of a democratic society (Badat, 2010). As mentioned in Chapter One, since 1994, the substantial initiatives to transform HE, in its contribution to the process of societal transformation in the country, included increasing access for previously disadvantaged groups, advocating for equity and diversity in both staff and student populations, and restructuring the HE landscape. These were aligned to policy in government (Woldegiorgis & Chiramba, 2024), which will be briefly expounded upon hereunder.

The Education White Paper (Education, 1997) sought to align HEI's educational programmes and training with South Africa's societal and economic needs, where undergraduates and graduates would be equipped with skills and attributes for the workplace as well as further studies. This vision was supplemented by the National Development Plan 2030, which targeted the improvement of the quality of education, skills development in education delivery, and innovation for the nation (Carrim & Wangenge-Ouma, 2012).

The Green Paper for Post-School Education and Training (Van Rooyen, 2012) focused on transformation to overcome past inequities and develop the HE system to contribute more to social, economic, and political development. Furthermore, the system was designed to meet employment needs, support human rights and social inclusion, contribute to the advancement of knowledge, and respond to both the local context and national needs. The advancement of social inclusion required the development of skills in the populace, as it is established that those without them are excluded from jobs and have a lower quality of health and well-being (Wheelahan & Moodie, 2011). This was supported by a global consensus on the importance of skill development

and the role of education and training in developing these skills and competencies. Although the nature and types of skills needed in modern society and how to develop them are less clear, many countries' HE outcomes indicate that graduates lack the skills required in the workforce; this includes communication, decision-making, problem-solving, emotional intelligence, and cultural sensitivity, to name a few (Winberg et al., 2020). This predicament is exacerbated by the rapid pace of social, economic, and technological change in the knowledge economy, which has significantly altered the landscape of graduate employability (Wheelahan & Moodie, 2011).

To this end, graduates are confronted with a multifaceted, multicultural environment that transcends their local contexts as borders become more porous in both academic and professional contexts. As a result of this transformation, students need to cultivate a comprehensive set of soft skills, with cultural awareness and diversity competence being the most important. In many disciplines, the capacity to adapt to diverse social norms, demonstrate empathy towards diverse perspectives, and communicate effectively across cultural boundaries has become as critical as even technical proficiency (Winberg et al., 2020). Universities worldwide are acknowledging this change and are incorporating intercultural competencies into their curricula to equip students with the skills necessary for a global career, rather than just simply for a job (Al-Houli & Al-Khayatt, 2020). This emphasis on cultural diversity as a critical soft skill is indicative of the realisation that in our interconnected world, the most successful graduates will be those who can bridge cultural divides, cultivate inclusive environments, and utilise diverse perspectives to drive innovation and address the intricate global challenges. The perceived mismatch between HE and employers now emphasises the potential value of generic competencies, or GAs, in HE policy in bridging the deficit.

Most studies on GAs stem from the developed Global North, which may highlight different perspectives than found in the Global South, where the focus would be more inclined to be on the struggle against injustice and inequality (Leibowitz, 2012). For example, in the Global South, countries like Brazil and India have expanded access to HE while striving to preserve quality. Propelled by conflicts between local resource needs, global competition, and efforts to decolonise knowledge systems, the challenge to develop GAs like Indigenous knowledge systems and contextual problem-solving has become more complex in response to unique global demands (Heleta & Bagus, 2021) than in first-world, Global North countries. This global shift towards emphasising generic competencies and GAs in HE has likewise influenced the South African landscape, where increasing cultural diversity and international connections have emphasised

the importance of soft skills development. Soft skill development is purported to facilitate better communication and people's abilities to manage differences effectively (Pop & Barkhuizen, 2010). Examples of soft skills are good interpersonal communication skills, kindness, team spirit, negotiation instead of confrontation, team cohesiveness, intercultural sensitivities, observance of rules and procedures regarding company etiquette, and similar traits (AlHouli & Al-Khayatt, 2020). Soft skills are considered a key component of GAs which serve to enable graduates to apply their knowledge and values in real-world situations (Pop & Barkhuizen, 2010). So, against this backdrop, in this rapidly evolving landscape of the 21st-century workplace, GAs have now gained significant traction in HE discourses and practice.

Universities in SA developed charters or standards documents of generic attributes to address the challenge of graduate preparedness. These charters delineated the skills and attributes that the institutions anticipate their students would possess upon completing their studies. A baseline study by Griesel and Parker (2009) of South African employers on graduates revealed the following points:

1. Employers value the conceptual foundation, knowledge, and intellectual approach to tasks produced by higher education.

2. There may be more of a common language between higher education and employers than is generally perceived.

3. There is a real need to address gaps between employer expectations and HE outcomes; this has largely to do with proactive task-directed engagement and the application of knowledge; and

4. A degree of realism will have to be sustained on both sides about how HE can be expected to ‘bridge the gap’ and the role that only employers can play in providing on-the-job learning and continuing development.

From this study, Griesel and Parker (2009) suggested that to prevent a scenario where graduates from previously disadvantaged universities are perceived to be less competent compared to those who have attended more established universities, previously disadvantaged universities must prioritise updating their curriculum and enhancing the quality of their teaching and learning practices to enhance the development of GAs. It is expected that embedding GAs within the curriculum development would ensure the development of competent practitioners who are well-

prepared for the workplace and who can make a valuable contribution to their communities (Plastow & Bester, 2020). However, to achieve this, Jacobs & Strydom (2014) have long noted that there should be an in-depth discussion amongst stakeholders, commitment of staff to the agenda, and integration between GAs and the formal curriculum.

While stakeholder engagement and curriculum integration are crucial for developing GAs, contemporary health curricula, drawing from traditional development models, often prioritise a narrower focus on specific competencies and their associated learning activities and assessments (Bhagat et al., 2019). Educators are now beginning to recognise that embedding GAs in health profession education (HPE) curricula is necessary to develop attributes needed to muster the dynamic, multi-dimensional, and integrated nature of curriculum (Plastow & Bester, 2020). Graduates from the CT programme need to register with the HPCSA to function as independent practitioners. The HPCSA's adoption of GAs in their regulatory standards includes continued professional growth, professionalism, effective communication, and critical thinking. The Council denotes the significance of these attributes for ensuring graduates who are both technically skilled and capable of making valuable contributions to patient care, interdisciplinary teamwork, and the larger health industry. Placement in clinical training units which are authentic learning environments is envisaged to enable the acquisition of both theoretical and practical knowledge, skills, and attributes to practice as independent practitioners (Nyoni, Dyk & Botma, 2021). Of these attributes, especially for the CT profession, communication is important to "offer direct support and advice to other healthcare professionals in the maintenance and physiological management of patients."[3] This statement highlights that it is not actually only about speaking a particular language, e.g., Isizulu, that is reflective of effective communication but also about the quality of engagement with the patient and others in the healthcare team.

[3]https://www.hpcsa.co.za/Uploads/professional_boards/rct/guidelines/Approved_Scope_of_Practice_Clinical_Technology_21_May_2020.pdf.

2.4 Graduate Attributes

Graduate attributes may be defined as a statement of education outcomes used to inform curriculum design and the provision of learning experiences at a university (Barrie, Hughes & Smith, 2009). Graduate attributes are the personal qualities, skills, competencies, and values that a student needs for their future work and participation in community life and should be developed through the process of university education and achieved at the point of graduation (Barrie 2006). They may be further described as incorporating both soft skills and discipline-specific expertise, namely, generic, transferable skills and employability skills (Hager & Holland, 2007). Irrespective of their specific disciplines and irrespective of the persisting debate about definitions, GAs are perceived as crucial for graduates to navigate the complex demands of modern professional environments (Barrie, 2007). Therefore, GAs represent a broader set of competencies that educational institutions aim to instil in their students. The range of definitions, qualifiers, and explanations is presented in Appendix 1 (Bester, 2014).

The literature suggests that it is now common practice for HEIs to embed employability expectations to enhance student learning outcomes to strengthen their vocational mission (Kromydas, 2017). The concept of graduate employability is defined as the skills and attributes that make graduates more likely to gain employment and be successful in their chosen occupations (Harry, Chinyamurindi & Mjoli, 2018). The focus on employability has become a pragmatic response to the massification of HE and the reduction of employment opportunities in the private sector (Cheng et al., 2022). As mentioned previously, the perceived shift to neoliberalism in HEI, characterised by globalisation, internationalisation, and a dramatic rise in for-profit institutions (Stoten, 2018), has redefined the role of HE. It is now accepted that these days, graduates are no longer able to rely on their HE qualification but need to be flexible and adapt to the changes in the labour market by developing and achieving a positional advantage over other graduates (Succi & Canovi, 2020) or face unemployment. Nowhere is this more apparent than in SA, where the rising unemployment crisis affecting mostly the youth now includes graduates. The reasons for this high rate of graduate unemployment have been ascribed to the youth's lack of 'graduateness' and employability attributes (Harry, Chinyamurindi & Mjoli, 2018) and a mismatch between the skills of new graduates and the needs of the labour market (Williamson, Wardle & Hasmi, 2021).

The Skills Development Act (SDA) mandates South African employers to address the skills gap by offering graduates chances for work experience and substantial upskilling to secure sustainable employment (Skills Development Act, 1998). In addition, it is important to acknowledge that SA exhibits significantly greater regional disparities than most affluent nations and when compared to its sub-Saharan African rivals (Walker & Fongwa, 2017). A systematic review (Williams et al., 2016) indicated that most employability research in education concentrated on individual-level factors. However, other authors emphasise that graduates' employability is significantly influenced by the surrounding context and by the development of employability attributes within a particular workplace context (Van der Klink et al., 2016). From this perspective, employability is a shared responsibility between HEIs, graduates, and employers, making it important to explore how each of these stakeholders perceives and enables the development of attributes.

Graduate attributes are closely tied to the missions, visions, and values of universities, as well as to their responsibility for ensuring the quality of the graduates they produce (Barrie, 2006). As such, many universities have mapped out the development of GAs to the learning outcomes within their degree programmes to assure prospective students and employers that they are producing work-ready graduates. Since GAs include disciplinary expertise and technical knowledge, as well as the soft skills that should prepare graduates to perform well in an uncertain future (Barrie, 2006), in the South African context, this could refer to the constitutional vision of accomplishing social justice to improve the lives of people as compared to where they were during the previous political dispensation (Barrie, 2012). The following section will elaborate on the Durban University of Technology's framework for graduate attribute development, called the DUT Big Five, a standards document that is reflective of its social justice mission.

2.4.1 The DUT Standard

The DUT Standard reflects the communication, planning, and organisational skills expected by employers of graduates living in the twenty-first century. This standard focuses on how the GAs represent the purpose of the qualification, as this is intended to develop a graduate who is prepared to transition to the world of work (Appendix 2). During the conceptualisation of the GAs, the Centre for Quality Management and Promotion (CQPA), which spearheaded this at DUT, in their position paper (Sattar & Cooke, 2014), chose the definition by Bowden et al. (2000) cited by McCabe (2010), who stated that graduate attributes are the:

"The qualities, skills and understandings a university community agrees its students should develop during their time with the institution… These attributes include but go beyond the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future."

These attributes, although not hierarchical, are interconnected and are outlined in the standards document[4], consisting of the following as shown in the table below.

Table 2.1 Excerpt from DUT standards document for Graduate Attributes

Critical and creative thinkers who work independently and collaboratively: Graduates will be effective problem solvers capable of applying logical, critical, and creative thinking strategies. They will have developed competencies that enable them to function effectively as team members who are resourceful and responsible and able to manage relationships with other team members.
Knowledgeable practitioners: Graduates will have in-depth knowledge in their chosen field of study and an ability to apply that knowledge in practice.
Effective communicators: Graduates demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences.
Culturally, environmentally and socially aware within a local and global context: Graduates will have engaged in processes to enable them to recognise the seminal cultural, environmental and social issues that have an impact on both their local context and globally. They are aware of the ethical implications of human behaviour.
Active and reflective learners: Graduates will take active, personal responsibility for their learning to enhance their professional and personal life and career development.

It is important to note that the communication attribute is the meta-enabler that allows for the development of other graduate qualities, including disciplinary knowledge and cultural

[4] See Appendix 2 – DUT standards document

competence (Harvey, Russell-Mundine & Hoving, 2016). So, with the focus on the effective communication GA, the DUT standard specifies that graduates should demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences (Appendix 2). However, the practical application of language and proficiency in language skills comes through practice, interaction, and real-world use; these two aspects are crucial for well-rounded language development and academic success (Rose et al., 2020).

There has been a call for more research on the process of students' learning of content knowledge to inform effective pedagogical learning approaches (Zhou, Fung & Thomas, 2023), rather than simply resulting in the passing of academic grades. In the CT context, the application of content knowledge in the clinical setting is critical for the acquisition of clinical competencies and professional development. Accordingly, it is anticipated that the lack of effective communication will hinder professional development and the acquisition of the requisite clinical competencies to function effectively as a graduate since language difficulty is linked to negative academic outcomes in student health professionals (Van Zyl, Bezuidenhout & Adefuye, 2020). Since GAs should be viewed as outcomes that can reasonably be expected from the HE experience (Barrie 2006), the HEI must understand the extent to which these are developed within existing curricula to honour these obligations. From the review of the literature, there appears to be limited data available on the development of the effective communication GA, or any other GA for that matter, in the CT profession. The paucity of data about effective communication from an HPE viewpoint, particularly in a non-WEIRD (Western, Educated, Industrialised, Rich, and Democratic) society, is notable and also warrants further inquiry.

2.4.2 Graduate Attributes in Health Professions Education

Health professions graduates must possess attributes beyond clinical knowledge and technical skills (Organisation, 2013). A study by Murdoch-Eaton and Whittle (2012) identified key attributes desired in medical graduates, and these included communication skills, professionalism, ethical behaviour, and the ability to work collaboratively. They also emphasised the importance of self-directed learning and critical thinking for lifelong learning in healthcare. In line with the ubiquitous reach of digitisation percolating into some aspects of the clinical context, the increasing importance of digital literacy and adaptability to technological changes in healthcare delivery has

also been highlighted. Additionally, there is a strong emphasis on developing culturally competent healthcare professionals (Henderson et al., 2018).

It is established that the traditional medical curriculum has been discipline-centred and time-based, with teaching, learning, and assessment strategies largely focused on knowledge rather than on attitude and skills (Shah et al., 2016), without a formal component for inclusion of such skills as ethics, professionalism, or communication (Bhagat et al., 2019). The over-reliance on 'silo' teaching, where individual modules are taught in isolation from one another, rather than in an integrated, interdisciplinary, or collaborative approach, may not prepare students for more complex procedures, which would allow them to demonstrate responsiveness towards a variety of recipients or be able to integrate principles of professional responsibility and ethics (Peck, 2018). In addition, the sole focus on competencies may not adequately equip graduates for the changes that may shape the curriculum or for the adaptability needed for workplace practices in the future (Lee, Chien-Ching & Chin, 2016). Modern-day clinical environments are increasingly confronted with unprecedented challenges, including staffing shortages, staff burnout, global pandemics, and rapidly advancing technologies, in both domestic and international contexts (Smith, Horne & Wei, 2024). Despite the challenges, the Institute of Medicine (IOM) (Long, 2003) emphasises that providing patient-centred care must be the first core competency that HPE must focus on and that this care must involve respecting and responding to individual patients' care needs, preferences, and values in all decisions related to their care. This can be achieved through effective communication (Kwame & Petrucka, 2021).

A recent systematic review identified knowledge, skills, and interpersonal relationships as the key attributes for healthcare workers, in this case, for nurses (Smith, Horne & Wei, 2024). Internationally, healthcare professionals are expected to work effectively with an increasingly diverse population (Bajjaly & Saunders, 2021). Studies conducted in SA (Singh, Samuel & Wassermann, 2020) highlight disciplinary knowledge and competence in communication, conflict resolution, negotiation, and decision-making (v Swingler et al., 2022) as critical for working with diverse populations. Another study by van Schalkwyk et al. (2016) focusing on medical postgraduate students highlighted the challenges but also the necessity of developing and being able to assess soft skills and professional attributes, as well as the importance of clinical placements for the development of GAs in the health professions. Soft skills in the HE context are related to language learning, concepts of behaviour, and grooming etiquette for the profession (Dash, Satpathy & Dash, 2020). Importantly, the authors stressed the need for alignment between

academic programmes and health sector employer expectations, where just qualifications may not be necessary; however, they conceded that qualifications and individuals with the requisite communication skills would thrive in this globally competitive world. This was supported in a review of students' speech-language pathology performance in the workplace as assessed by clinical educators who identified generic competencies like communication and professionalism as being important to their development of professional competencies (McAllister et al., 2011).

A recent benchmarking exercise by the HPCSA using domains of practice, including interpersonal skills, professionalism, professional care knowledge and skills, and collaboration from New Zealand, the United Kingdom, and Canada, found minor variations between the countries; however, what was common was the communication aspect (Appendix 3)**.** While it is appreciated that second language applications in South Africa versus developed countries differ, these, as well as other language challenges related to our context, will be further interrogated when findings are interpreted. To my knowledge, limited research is available for CT either nationally or internationally, highlighting the potential value of this study in understanding how the effective communication GA is developed.

2.4.3 The Effective Communication Graduate Attribute

Communication is widely recognised as a critical GA across disciplines, and educating students on how to communicate effectively and appropriately is regarded as a central role of any HEI (Morreale, Valenzano & Bauer, 2017). In fact, of the three domains of competence, namely cognitive, intrapersonal, and interpersonal, it is communication that spans all three (Hilton & Pellegrino, 2012). The literature is replete with studies that suggest that graduates with good communication and interpersonal skills have a competitive edge in the marketplace and are therefore more employable (Morreale, Valenzano & Bauer, 2017; Osmani, Weerakkody & Hindi, 2017). Communication enables understanding, listening, and information sharing between individuals and employees, and the important dimensions of communication include articulation, clear explanation of issues, problem-solving, and language proficiency (Dunne, 2005). Recent studies suggest that employers prioritise effective communication as a skill for prospective employees (Succi & Canovi, 2020; Osmani, Weerakkody & Hindi, 2017; Stevens, 2019), with some evidence indicating that 93% of employers apportion more importance to clear communication than just a student’s major area of study (Outlook, 2014).

Research from SA and internationally shows that effective communication skills and teamwork are key attributes of healthcare practitioners (MacDonald-Wicks & Levett-Jones, 2012; Matthews & Naidu, 2019; McAllister et al., 2011). This was corroborated by Morreale et al. (2017), who highlighted the central role of communication skills in all facets of a student's life, as well as by a systematic review of team-based learning in health professions education, which highlighted that team-based learning was effective in teaching skills like effective communication, teamwork, and conflict resolution (Reimschisel et al., 2017), and therefore the development of GAs for the profession (Currey et al., 2015). However, the lack of these soft skills, of which communication attribute is one component, has been repeatedly cited in the extant literature to explain the disparities in persistence and completion rates in minorities (Hora, Benbow & Smolarek, 2018) or disadvantaged groups. This is particularly relevant for the South African context (Parry & Brown, 2009), as is described below.

2.4.4 Graduate Attributes in the South African context

As mentioned in Chapter One, the SA HE environment is unique, as it still reflects the socioeconomic inequities after the apartheid legislation (Jansen, 2023). The end of apartheid enabled a change in the way HE in SA was structured and how it functioned (Carrim & Wangenge-Ouma, 2012) to address the need for greater participation and responsiveness. It was anticipated that adequately developed GAs would afford opportunities for increased participation, responsiveness, and cooperation to be developed and allow students to question the status quo and contribute to the discourse instead of just adopting it. The South African government launched the Joint Initiative for Priority Skills Acquisition (JIPSA) in 2006 (du Pré, 2006) to catalyse the bringing in of the skills needed in the South African economy as well as the role of HE in this initiative into focus (Commission, 2013). There was an expectation that graduates would leave the university ready for the workplace. Unfortunately, HEIs were criticised because they did not offer adequate soft skills, which encompassed problem-solving, communication, entrepreneurship, and good citizenship, to name a few (Kruss, 2004).

The South African context is multicultural and multilingual, and the HPCSA stipulates several key attributes and qualities in healthcare professionals to ensure the highest standards of care and patient safety in this context, like clear communication, empathy, and cultural sensitivities. While these attributes are now internationally established for health and other professionals, the extent

to which students can interpret a situation and essentially think and act as professional practitioners, in the context of these GAs, needs exploration. These attributes are also outlined in the HPCSA's approved scope of practice for CT [5]. Although the attributes themselves may be explicitly incorporated into the programme structure, they may lead to unrealistic expectations from new graduates since these skills are usually attained over a longer period after graduation. This was deduced by Brits (2018) in their study of the assessment of employer satisfaction and employability. Similarly, the SAQA-HESA study by Griesel & Parker (2009) suggests that the preclusion of an aligned vision of a set of understandings and attributes that contribute to an individual's personal, academic, and career development may be more a case of different perspectives rather than a mismatch. When all stakeholders have a common conceptualisation of GAs and their value, it makes their development more likely. How different stakeholders (students, educators and employers) conceptualise GAs in CT is not currently known.

2.4.5 Clinical Technology Course Structure

The Clinical Technology programme is a 508-credit bachelor's degree at NQF 8, whose purpose is to develop a graduate who possesses the necessary knowledge, skills, attitudes, and values to practice as a Clinical Technologist as a part of a multidisciplinary team in one of the following specialist categories: Cardiology, Cardiovascular Perfusion, Critical Care, Nephrology, Neurology, Pulmonology or Reproductive Biology. Students spend two years full-time at the university, where the first year is intended to develop the foundational knowledge required of a healthcare professional, with 2nd-level modules continuing to develop knowledge in the areas of anatomy, physiology, pathophysiology, and research methodology. Modules like instrumentation and clinical practice relating to CT-specific knowledge and skills are introduced in the first year and are restricted to students enrolled in the CT programme to develop foundational skills in CT assessment and analysis. These modules aim to introduce, reinforce, and extend student learning using patient-based scenarios using simulation, diagnostics, and problem-solving. Students also receive exposure to the clinical environment in the form of hospital visits, the point at which they observe how qualified CTs undertake their duties in a real-life environment.

[5] https://www.hpcsa.co.za/Uploads/professional_boards/rct/guidelines/Approved_Scope_of_Practice_Clinical_Technology_21_May_2020.pdf)

Two clinical years (years three and four) at an HPCSA-accredited clinical training site, with the continuation of the theoretical modules. A brief structure of the qualification is as follows, with General Education modules included from first to fourth years:

Year 1: Basic sciences (Physics, Chemistry, Anatomy, Physiology, Pathophysiology I), instrumentation, and clinical practice in Clinical Technology (Introduction).

Year 2: Basic sciences (Applied Anatomy & Physiology, Pathophysiology II), instrumentation and clinical practice, and introduction to research methodology.

Year 3: Pharmacology, Pathophysiology, Instrumentation and Clinical Practice in the specialist category, Research Proposal Development, Healthcare Management.

Year 4: Advanced Instrumentation and Clinical Practice in the Specialist Category, Research Project, Healthcare Management.

Although there is currently no formal communication module in the curriculum, communication was envisaged to develop from the first year in the Clinical Practice and Instrumentation modules and written and verbal communication through the specialist modules as well as the research modules.

2.4.5.1 Clinical Practice Component

Cumulative theory building and the progression of the field of practice are requirements for student health professionals to acquire appropriate disciplinary knowledge to develop competent practice (Winberg et al., 2013). Therefore, competent practice encompasses the theoretical knowledge of the field and practical expertise within it. In Clinical Technology (CT), students must acquire the necessary knowledge and abilities to be able to work as graduates after four years of undergraduate study. To do this, students spend the latter two years at an HPCSA-accredited training site, where they are expected to acquire the relevant clinical skills, as well as develop such attributes as critical thinking, effective communication, and teamwork, to name a few (Sattar & Cooke, 2014). Recent studies acknowledge the limited explorations of student experiences in clinical practice (Gillett-Swan & Grant-Smith, 2018), and the current literature highlights the challenges students experience in the clinical context, such as financial and psychological stress, social isolation (particularly during the Covid-19 pandemic), an unbalanced study/life schedule, and exposure to unethical or exploitative work practices (McDonald & Grant-Smith, 2020).

Therefore, these sociocultural perspectives, as well as the interactions between individuals who are part of the context, must be considered when evaluating how skills, knowledge, and attributes are developed.

Clinical Technology students, like other health professions students undertaking clinical practice, are affected simultaneously by the challenges of academic learning tasks as well as the demands of real working-life situations; it is also known that the clinical experience is a key influence on students' professional development (Liljedahl et al., 2015). Furthermore, in HPE, the quality of clinical experience may be negatively impacted when it is provided in *ad hoc* ways but strengthened when there is collaboration between the clinical and academic stakeholders (Stoffels et al., 2021). Currently, in CT, the clinical practice component is structured in a manner such that there is scaffolding and gradual development of clinical competencies, facilitated by a university-appointed clinical educator who is based in a particular clinical site. Supervision ratios are strictly regulated by the HPCSA and may occur as a one:one (1:1) model characterised by one clinical educator and one student or a one:two model (1:2), where one clinical educator supervises two students, depending on the speciality. Since CTs work mostly in tertiary hospitals, clinical placement sites are exclusively in urban areas and in both private and public institutions. Given the known differences in these clinical contexts, it is generally expected that students would be exposed to varying patient diagnoses, caseloads, and multidisciplinary teams. However, the extent of variability and impact on the development of the effective communication GA is not known, as there are no studies in CT that have explored the status of the training, conceptualisation, or collaboration to achieve the GAs expected for the clinical environment.

2.4.6 Student perspectives of graduate attributes

Recent research affirms the importance of students' perceptions of their readiness for the workplace in the transition from HE to the graduate workplace (v Swingler et al., 2022) and to the development of employability skills (Tibby & Norton, 2020), which may be impacted by lack of awareness and confidence in mobilising transferable skills when transitioning to the workplace (Jackson, 2016; Artess, Mellors-Bourne & Hooley, 2017). A recent study (Mariño et al., 2023) found students underprepared for the clinical environment due to limited exposure to procedures and other contextual elements of clinical practice. Other studies indicate a need for more research on diverse understandings of GAs since the understanding thereof and knowledge of how to

acquire these may enhance employability (Bitzer & Withering, 2020). Currently, there seems to be a mismatch in employers' and graduates' rankings of desirable GAs, as well as a discrepancy in the skills that employers require and how students perceive them (Lee, Chien-Ching & Chin, 2016). To illustrate, a study at the University of the Western Cape (UWC) found that students displayed some understanding of GAs and acknowledged their importance in increasing students' employability. The author also noted that the staff at UWC had some contribution to the development of how GAs were learnt and developed (Withering, 2019). A study at DUT (Ncube & Matlala, 2023) reported that GA development was linked with student success and recommended that curricula be developed collaboratively so that students could acquire adequate GAs suitable for employment.

Despite this, there remains a dearth of literature in health professional contexts, particularly from students' perspectives (Mariño et al., 2023), since the discourse on GAs seems to be dominated by university staff, national governments, and industry (Bitzer & Withering, 2020). This is important since a recent study reported that students conceptualise GAs in a multi-layered way that is firmly embedded in disciplinary understandings (Jones & Pate, 2019), which is developed in the clinical context. Furthermore, the authors emphasise that GAs must be articulated and taught within the formal curriculum with congruency through the informal curriculum and be communicated across all levels in a manner that is clear, meaningful, and relevant to students.

This is particularly noteworthy since it is established that the development of GAs, although generic, is not context-free; the development of GAs is indeed influenced by context, ethnicity, gender, and class. This was evident in a study on the perceptions of final-year medical students; students reported that cultural values and attitudes from mentors, peers, and patients impacted the quality of their clinical experiences (Van Wyk et al., 2016) and therefore their development of clinical outcomes as well as their decisions regarding future clinical practice. Another study of third-year physiotherapy students indicated that language barriers influenced their treatment of patients negatively (Vuuren & Nel, 2018), while a study by Matthews & Diab (2016) reported on the influences of students' cultures and the roles and behaviours of doctors and patients in cross-cultural consultations. The author also identified potential knowledge and experience gaps that existed across cultures that were reported by students and recommended an awareness of patient-centredness. In addition, there is a need for a review of existing curricula to tackle various concerns around collaboration between students, clinical personnel, and educators for a cohesive learning environment and achievement of GAs (Naidoo et al., 2018). Given the complexities of

developing GAs, Hora et al. (2018) point out that the assumption that students will somehow develop these attributes by osmosis is flawed. My study will meet this gap by adding to the conversation on students' perspectives on GAs and their development while exploring these contextual nuances.

2.4.7 Academic Educator Perspectives of GAs

Although most universities emphasise the inclusion of GAs within the curricula (Bitzer & Withering, 2020), the development thereof appears to be more of an implicit experience that students are expected to acquire in the latter years of a programme when discipline-specific practical knowledge is addressed. It is now established that it is inadequate for graduates to *just* acquire a degree (Gore & Botha, 2022); the attributes and skills required to compete and collaborate in the dynamic knowledge economy are now critical components for employability. So, although enhancing graduate employability remains a priority for many stakeholders in HE (O'Leary, 2017), academics still struggle to integrate employability skills into the curriculum (Okolie et al., 2020). Internationally, these barriers include limited resources for innovative approaches, a lack of additional teaching and assessment time (Okolie et al., 2020), and limitations around student preparedness for such engagement (Bond et al., 2017). In addition, the translation of 'top-down' policies on GAs into the context of their discipline has posed challenges for staff (Barrie, 2007). Finally, the significant difference between beliefs and actual emphasis reported in practice (De la Harpe & David, 2012) highlights the need for more exploration to gain deeper insight into what drives academics and their beliefs and conceptions about, and their engagement with the GAs to ensure greater progress in this area.

South Africa's inherited HE system of deep-rooted historical inequalities continues to affect curriculum responsiveness, as students from marginalised communities often face limited resources, outdated curricula, and inadequate support. It has been shown that the impact of these inequalities inadvertently manifests itself when graduates exit the system to enter the workforce (Rogan & Reynolds, 2016). These challenges are exacerbated by the fact that graduates need to embrace the diversity of a multilingual and multicultural country. The responsiveness of the curriculum to developing these skills and attributes, as well as the role of HE curricula and that of the academics to implement this, has now become critical to enhancing the experiences of learning and development of GAs (Duma, Adewumi & Gumede, 2023). This was shown in a study

of allied health students, where the authors, who were academics, recommended that GAs be integrated as early as possible into curricula for student academic and professional development (Pillay, Ally & Govender, 2019). However, although these GAs are being increasingly featured in institutional mission and vision statements, curriculum design, and accreditation criteria, Hora et al. (2018) point out that the expertise needed to properly instil or develop such skills in students is ignored. The authors go on to highlight the convolutions involved with this task, considering that developing GAs is complex and not easily demarcated, particularly given the lack of formalised training of academics to integrate these difficult competencies into their content-heavy courses. This is one of the aspects that the current study will explore: how academic staff experience the development of GAs, particularly the effective communication GA, and how they integrate it into their curriculum.

2.4.8 New graduates' perspectives of GAs

According to the South African Graduate Employers Association, *The SAGEA employer benchmarks & candidate insights 2020,* new graduates are those who have completed a qualification at an HEI before transitioning into the labour market for the first time. It has been established that recruitment of these new graduates is dependent on supply and demand based on a matchmaking process between employer and employee (Steurer, Van der Vaart & Rothmann, 2023), using employability attributes rather than job-specific knowledge (Coetzee & Engelbrecht, 2020). Internationally, the employability attributes prioritise soft skills, of which communication is a major component (Winberg et al., 2020). It has been reported that new graduates who demonstrate these have a more competitive edge in the marketplace, and the ability to use them can be a strong predictor of future success, impacting directly on their employability (Finch et al., 2013). The need to develop transferable skills that consequently improve graduate employability and future work success extends across all disciplines, from the humanities to the STEM and health professions (Demaria, Hodgson & Czech, 2018).

In the South African context, new graduates' perceptions of the development of GAs are shaped by the unique combination of socio-economic factors, educational challenges, and the evolving needs of a diverse and evolving job market (Bester et al., 2018), as described above. This was consistent with a tracer study from the Eastern Cape, which reported that schooling background, race, and gender were associated with unemployment (Rogan & Reynolds, 2016). South African

graduates, as a consequence of these challenges, may end up in jobs outside their field of expertise or taking positions at lower levels (Mtshali & Ramaligela, 2020). Furthermore, a study by Pop & Barkhuizen (2010) highlighted the importance of practical training for the application of knowledge and thereby, the enhancement of graduate employability.

Authors at a South African university reported that graduates felt unprepared for the workplace, while employers perceived graduates as lacking core employability soft skills (Mtawa, Fongwa & Wilson-Strydom, 2021). Similarly, a recent study in the Western Cape found that graduates were not properly prepared for the employment market in that the university education and the skills affecting the employability of graduates were generalised and lacked specificity in addressing industry needs (Fanyana, 2022). In this present climate, graduates are expected to adapt and demonstrate flexibility to respond to the constant changes in the labour market and thereby gain a competitive edge over the workforce who are already in the industry. To achieve this advantage, the acquisition of a mixture of soft or transferable skills and discipline-specific knowledge is crucial (Vezi-Magigaba & Utete, 2023).

Studies exploring the perspectives of new graduates in HPE are scarce. A study on new graduates in radiography in Australia (Pettit, Hodgson & Williams, 2017) found that participants reported less development of the generic skills in the work/clinical settings, and the study called for alignment between curriculum and actual teaching for the development of these attributes. One study that examined the perspectives of newly graduated physiotherapists undertaking community engagement in SA (Mostert-Wentzel, Frantz & Van Rooijen, 2013) highlighted the need for the incorporation of the development of teamwork, cultural competence, and resilience.

There has been a call for HE to determine the gains in knowledge and skills of graduating students at a programme level (Hodgson, Varsavsky & Matthews, 2014) to align the achievement of complex learning outcomes, like GAs, with learning and assessment activities. An understanding of how new graduates perceive the development of these GAs, and especially which activities undertaken during the study programme expose them to develop these, will be important for curriculum refinement. Finally, it is acknowledged that the period of transition from student to independent practitioner is a challenging and potentially stressful experience. To this end, several studies have recommended more preparation for graduates for the process of transition in both the academic and clinical settings (Harvey-Lloyd, Morris & Stew, 2019; Naylor, Ferris & Burton, 2016) since newly qualified practitioners may experience the reality shock of independent

practice. However, this preparation needs to be backed by empirical data, none of which exists for CT.

2.4.9 Clinical educator perspectives

There is an expectation that producing graduates with the right skills and capabilities to meet the demands of employers as well as the contemporary world is a critical role of universities (Nair, Patil & Mertova, 2009). In addition to the ‘hard’ or disciplinary skills, several skills and attributes have been identified as industry-relevant competencies by employers for employability (O’Leary, 2017). For example, the Council for Industry and Higher Education in the United Kingdom (Archer & Davison, 2008) highlighted good communication skills, soft skills such as teamwork abilities, and professional work experience as the highest-ranked skills desired by employers from new graduates. In fact, communication emerged at 88% and teamwork at 85% when ranked by employers. Therefore, the shift from the focus on discipline-specific skills to one incorporating soft skills confirms the pivot to a knowledge economy where there is a higher emphasis on graduates’ ability to communicate effectively to various stakeholders, on their ability to build relationships in multiple teams, and on their capacity to adapt to the external context (Succi & Canovi, 2020). Employers are now seeking employees with strong soft skills to thrive in the work environment (Afrin et al., 2023). A recent international study by clinical educators in Australia from the allied health professional field identified self-awareness, resilience, communication skills, organisational skills, lifelong learning, and professionalism to support the work preparedness of students completing placements (O'Brien, Troy & Kirkpatrick, 2020). The authors sought to use this information to develop targeted programmes to assist students’ development in these attributes. However, another recent study showed that a considerable proportion of new graduates in SA lack the necessary soft skills, which forced employers to hunt for other candidates, resulting in increased graduate unemployment rates (Vezi-Magigaba & Utete, 2023). Furthermore, SA employers perceived graduates as lacking core employability soft skills, demonstrating the mismatch between what universities produce and the immediate needs of the changing world of work (Mtawa, Fongwa & Wilson-Strydom, 2021), and in concert with other SA researchers who highlight various levels of skills shortages (Arends et al., 2016; Griesel & Parker, 2009).

The stark reality in SA is that the mismatch between employers' demands and graduates will be sustained unless new graduates are equipped with attributes valued by the industry, perpetuating

the status quo on unemployment. Further studies should be undertaken to understand employers' expectations and requirements of skills for the workplace, as well as the attributes needed for satisfactory graduate performance (Osmani, Weerakkody & Hindi, 2017). This is a particularly important contribution of my study since no data on clinical educators' conceptualisation, experiences, or expectations regarding GAs is available.

In SA, the HPCSA's adoption of GAs in their regulatory standards aims to develop practitioners who practice to the highest standards of care and patient safety and is common practice in healthcare courses worldwide. In HPE, there is a need for alignment of learning and teaching expectations between students and clinical educators to achieve learning outcomes, which has been found to influence the quality of clinical learning (Stoffels et al., 2021). This ties in with the mandate of the HPCSA, since its regulatory function incorporates the education and practice of health professionals in SA, ensuring that they meet the standards for the provision of safe, effective patient care. So, it is in this learning space and context that the development of clinical expertise, the formation of professional identity, and the development of the attributes for the profession occur. Therefore, it can be assumed that the sociocultural factors will influence the interactions between individuals who are part of the context and may impact how these skills, knowledge, and attributes are developed (Ernstzen, 2013), as well as the level of congruence in how students and clinical educators conceptualise these GAs and understand their development.

2.5 Development of the Communication Graduate Attribute

The development of effective communication skills in graduates, while fundamental to success in both academic and professional spheres, is a complex process influenced by various factors. The development of communication skills is based on several theoretical frameworks. The Social Learning Theory, proposed by Bandura (1977), suggests that individuals learn communication behaviours through observation and imitation and evolve through various stages of cognitive, social, and linguistic growth. Initially, communication skills are nurtured through interactions with carers and peers, where basic language acquisition, non-verbal cues, and social norms are learnt. As individuals progress through formal education, these foundational skills are refined and expanded, incorporating more complex language structures, critical thinking, and the ability to engage in abstract reasoning. Kolb's Experiential Learning Theory from 1984 (Kolb, Boyatzis &

Mainemelis, 2014) emphasises the importance of concrete experiences and reflective observation in skill acquisition.

When students enter HE, their communication skills evolve significantly as they are expected to articulate in the academic language of the diverse disciplines they are exposed to. The university environment also pushes students beyond simply absorbing information to actively participating in academic discussions, challenging established theories, and contributing new ideas to their fields (Lee, 2017). This growth is supported by a greater focus on written assignments, oral presentations, and group projects, which collectively build the advanced communication abilities crucial for thriving in both academic and professional spheres.

The development of effective communication skills as a GA in HPE is a deliberate and nuanced process, specifically designed to meet the unique challenges of contemporary healthcare settings. Its development directly impacts patient care, interprofessional collaboration, and overall healthcare outcomes (Brown, Spicer & French, 2021). Initially, students are grounded in the essential elements of healthcare communication, encompassing medical lexicon, patient engagement techniques, and strategies for effective teamwork across disciplines. This foundational knowledge is then reinforced and expanded through a multifaceted approach, which integrates theoretical learning in academic settings and real-world experience during clinical rotations (Kurtz, Draper & Silverman, 2017) to acquire the professional and language lexis. As described by Lave and Wenger (2001), a participant's proficiency and eventual mastery of the language and discourse of a group serve as a pathway for progression, enable initial peripheral participation, and over time, new members must adopt the community's linguistic norms to fully integrate into the community. This approach has evolved substantially over the past few decades, shifting from a predominantly didactic approach to a more integrated and experiential model, which now includes the use of information and communication technologies (Borg et al., 2019) to supplement contemporary methods like simulated patient encounters, role-playing exercises, and interprofessional education modules (Gelis et al., 2020). Throughout this process, students develop their ability to articulate intricate medical concepts with empathy, whether interacting with patients and their families or collaborating with fellow healthcare professionals (Brown, Spicer & French, 2021).

As students progress, their communication skills training further evolves to focus on more complex scenarios, where non-verbal cues, cultural awareness, and interprofessional collaboration skills (Kim et al., 2019) are developed in the clinical environment. This comprehensive approach ensures that graduates are well-equipped to navigate the complex communicative demands of modern healthcare environments, not only enhancing basic communication skills but also more complex competencies such as cultural sensitivity and shared decision-making (Lee, 2017). Evidence of this was shown in a case-control study by Moral et al. (2019), which demonstrated that medical students who engaged in regular, structured communication practice and received written feedback from multiple sources showed markedly improved patient satisfaction scores compared to the control group (Lai et al., 2020). In addition, the integration of reflective practice and feedback mechanisms, such as peer assessment, has been shown to accelerate the development of effective communication strategies among student health professionals (Taylor, Ryan & Elphinstone, 2021).

During the last two decades, several frameworks for the translation of knowledge of communication skills into practice have been developed in different settings (Ammentorp, Chiswell & Martin, 2022). These include the examination of intrinsic factors like the ability of an individual to apply new behaviours in the workplace; in the healthcare setting, it would refer to a student's ability to convey information effectively and build rapport with patients. Extrinsic factors are the external influences that shape the communication process and include the characteristics of the programme, the professional background and training of the academics, and the organisational culture of the HEI and work environment. These influences create a complex communication landscape in healthcare settings, necessitating a multifaceted approach to examining the development of communication skills among healthcare professionals (Abu Dalal et al., 2022).

Despite the improvements in the development of effective communication, challenges remain in bridging the gap in learnt communication between classroom learning and clinical application (Wilson et al., 2023), since the understanding of how knowledge and skills are systematically transferred from the classroom to clinical practice is still in its infancy. Continued research and innovation in communication education within health professions to refine curricula to respond to the ever-changing needs of society has been recommended (Bachmann, Pettit & Rosenbaum, 2022).

2.6 Rationale

Recent research has highlighted the importance of transferable skills and competencies which graduates can apply in various job structures and professions throughout their careers (Zakaria et al., 2020) that may be acquired through the development of GAs, in addition to the discipline-specific content. However, GAs are currently challenging to assess or measure and, unlike the attributes associated with formal academic learning, may remain hidden. In addition, some authors argue that GAs lack a theoretical underpinning, are difficult to implement, and may infringe on academic freedom (Wald & Harland, 2019). While there is a perception that GAs may be firmly ensconced in Western epistemologies, some authors believe that they can still be used to challenge the dominance of Western ways of knowing, being, and doing in localised curricula (Harvey & Russell-Mundine, 2019; Harvey, Russell-Mundine & Hoving, 2016) and thereby raise the prominence of epistemic justice. Irrespective of how GAs are perceived, the data suggests that graduates who are better equipped for employment are preferred by employers, professional bodies, and society at large (Gamage et al., 2023). Therefore, the importance of students' perceptions and experiences of their readiness for the workplace in the transition from HE to the graduate workplace (v Swingler et al., 2022) and the development of employability skills (Tibby & Norton, 2020) warrants further investigation.

Failure to conceptualise GAs amongst all stakeholders within a particular disciplinary context may have serious implications for the implementation and assessment of their development (Green, Hammer & Star, 2009). There is a call for more research on all stakeholders to determine their level of engagement with the learning and development of GAs since any organisational change requires some degree of consensus (Brits, 2018). Aside from medical students' perceptions, studies in HPE are particularly scarce. Despite its importance, there is concern that contemporary teaching and learning approaches do not always facilitate the development of a requisite level of both verbal and written communication skills (Bajjaly & Saunders, 2021; Parry & Brown, 2009). These challenges are further eloquently encapsulated by Bester (Bester, 2014), who, upon reflection on the South African context, said:

"The invisible and elusive character of curriculum creates difficulties for academics who wish to embrace the challenge of preparing students for a changing world by embedding graduate capabilities into their teaching practice. This is compounded by the fact that, based on several

research projects over the past decade, it is evident that academics have different conceptions and orientations of curriculum." (pg 84)

This is particularly relevant for the CT programme where the curriculum has a strong practical focus, and while there is an acceptance that both clinical and academic educators should support students to develop both the discipline-specific attributes as well as GAs, this outcome may be precluded by a lack of common conceptualisation, training, or knowledge of how to integrate the development of the GA into practical and theory training and assessments. Winberg et al. (2013) claim that the values, proper scope, and potential underpinning the professional can only be realised if academic educators and students engage with and interrogate practice within the disciplinary discourse. This study seeks to address this gap for CT and will incorporate the perceptions and experiences of students, graduates, and educators.

The communication attribute is the meta-enabler that allows for the development of other graduate qualities, including disciplinary knowledge and cultural competence (Harvey, Russell-Mundine & Hoving, 2016). The HPCSA is the regulatory body for CT and ensures that clinical technologists have achieved the required professional competencies and attributes that will prepare them to meet South Africa's multicultural and multilingual standards for practice, for which the effective communication GA is critical. Although there is scant research exploring the extent to which student clinical technologists are prepared for practice (Prakaschandra, Meyer & Bhagwan, 2023), there is no evidence of how students and educators perceive, conceptualise and experience the development of the effective communication GA. Hence, the barriers to achieving these, the gaps in student preparation, or the extent of more formal support needed to enhance the development of this GA remain unexplored.

Therefore, in addition to providing empirically grounded data, this study addresses a few gaps regarding the development of effective communication GA in Clinical Technology. The first gap concerns the limited data on the conceptualisation of GAs from the perspective of students, new graduates, and academic and clinical educators in this profession in a South African context. The second gap concerns expectations of the effective communication GA, once again, from the perspective of students, new graduates, and academic and clinical educators, using the DUT standards document as a reference. The third gap is the lack of understanding of how this attribute is developed and operationalised across the different clinical contexts, particularly in terms of the lived experiences and perspectives of students and new graduates. Perspectives from academics

and clinical educators involved in its integration, development, and assessment also warranted examination. It was envisaged that my findings could guide the focus on meaningful strategies to enhance the conceptualisation and development of this GA amongst all stakeholders, namely, students, educators, HEI policy makers and employers. Furthermore, increased awareness of this GA could enable new graduates' agency, facilitating an adaptive approach to their careers (de Feijter et al., 2011).

Given that the research questions grew initially from personal observations and experience and then developed through the process of conceptualising the research topic around students, new graduates and educators' experiences of the effective communication GA development, a phenomenological design, positioned within an interpretivist paradigm, was appropriate for use in this study.

2.7 Theoretical Framework

This study has incorporated Activity Theory (AT) as a theoretical framework. Engeström's (1987) Activity Theory provides a conceptual framework that examines the interaction between the "subject" (such as students) and the "object" (the act of achieving the outcome), characterising social systems within their specific sociocultural context (Jones, 2013). The AT model (Engeström, 1999) may be used as a framework for analysing how GAs are conceptualised (Jones & Pate, 2019) since this theory recognises that human activity is multifaceted and varied in content and form. Using AT as a theoretical lens allowed me to understand the complexities and often conflicting motives of multiple components within an activity system, which impacted the object of study.

2.7.1 Activity Theory

Activity theory is a socio-cultural, socio-historical lens which can be used to analyse human activity systems and focuses on the interaction of human activity within its related environmental context (Jonassen & Rohrer-Murphy, 1999). The development of AT may be conceptualised as the culmination of four generations of theorising and research (Engeström & Sannino, 2021),

where each generation developed its own main unit of analysis. These will be discussed hereunder.

The original basis for the AT was derived from Vygotsky's (1978) observations of the problems with psychological investigations, where the experimental research was conducted separate from human context, creating a new perspective (Cole & Engeström, 2007) for the field. The first generation of AT was exemplified by Vygotsky's work, who wrote about "systems of activity" (Rieber, 1997) and proposed a triangular perspective (Figure 2.1) which was framed around the relationship between the object of cognition, the active subject, and the tool or instrument that mediated the interaction. In this model, Hasu and Engeström (2000) postulated that the subject was the person or individuals whose agency was chosen for analysis. The object referred to the purposes for which the action was intended. Tools facilitate the relationship between subject and object. Vygotsky (1978) further defined the Zone of Proximal Development (ZPD) as the gap between what people can do on their own and what they can do when mentored by more capable peers; in other words, the extent to which people learn through social interaction, with this interaction taking place in a historical context imbued with cultural artifacts. However, Vygotsky did not propose or conceptualise activity as a basic unit of analysis, resulting in the first-generation model (Leont'ev, 1981).

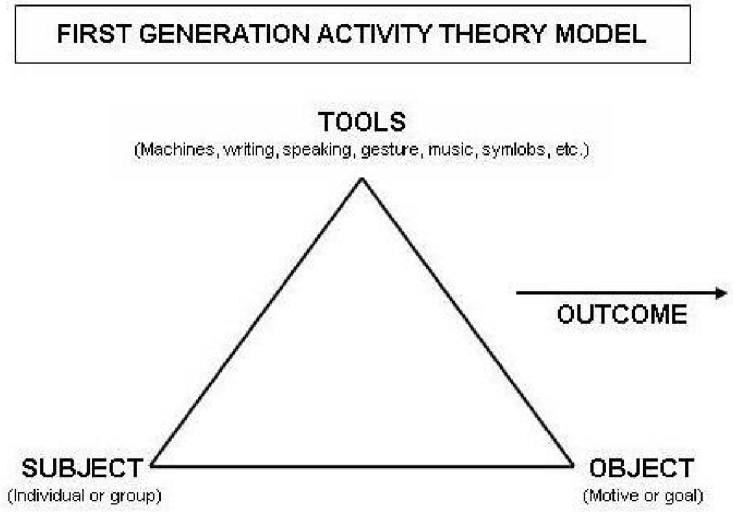

Figure 2.1 First-generation Activity Theory Model

Furthermore, the early model did not take into consideration the key difference between individual action and the collective activity of people working together as part of a community. So, between 1978 and 1981, the idea of activity was taken forward by Leont'ev (1981) as a second-generation unit of analysis, with a single, well-bounded activity system. Leont'ev emphasised the importance of the object rather than the subject and sought to distinguish between the immediate action and the larger overall system. According to Gilbert (1999), Leont'ev suggested three levels: operation, action, and activity, where operations were the most basic of the three levels, while actions were associated with an individual's knowledge and skills. Activity was given the highest level, defined by motives and goals. So Leont'ev' started the process of situating activity within a larger system, which was extended by Engeström et al. (2016).

This second-generation AT model considered the concept of activity, which "took the paradigm a huge step forward in that it turned the focus on complex interrelations between the individual subject and his or her community" (Anderson & Stillman, 2013).

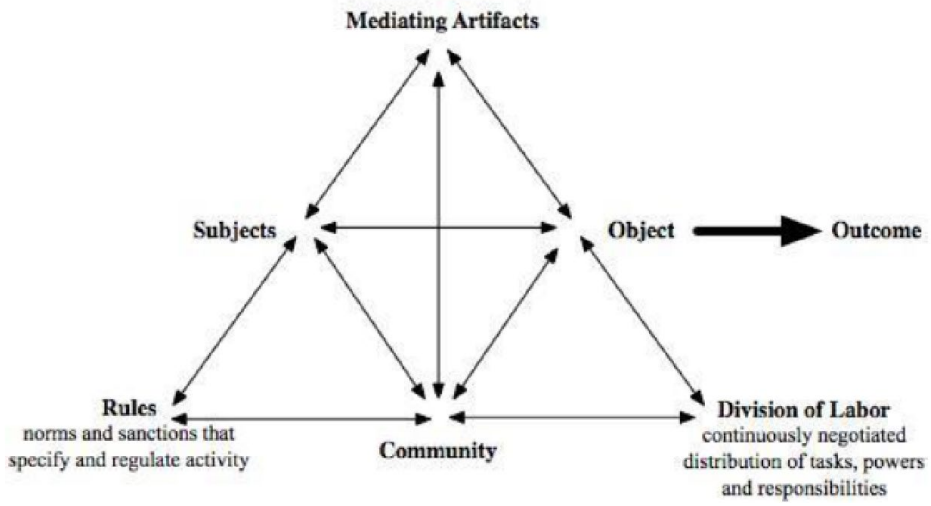

Figure 2.2 Second generation Activity System Triangle (Anderson & Stillman, 2013)

As seen in Figure 2.2, Engeström added the components of community (the organisation) and outcome (the intended or not implications of an activity) to the model (Engeström, 1987). In this model, the subject relates to the community via rules (norms and conventions), and the community relates to the object via the division of labour (organisation of processes related to the goal) and to the subject via rules, highlighting the contextualised nature of an activity; and all of these interactions are driven by a planned or anticipated outcome or purpose.

The evolution of this model from first to second generation summarily describes the human activity system as a triangle with interconnecting, multi-directional arrows symbolising the dynamic relationships between *tools* and *signs*, the *subject*, the *object*, the *rules*, the *community, division of labour* and *mediating artefacts*. These multi-dimensional relationships interact to create meaning and ultimately lead to an outcome (Anderson & Stillman, 2013).

While first- and second-generation activity systems models only considered activity within the system, a system does not exist in isolation but is inherently connected to the rest of society and human existence. Researchers soon realised that activity systems were increasingly interconnected and interdependent (Engeström & Sannino, 2021). Since the object is related to the outcome, the recognition of the impact or influence of socioeconomic, climate, technological, and geopolitical changes, to name a few, on the object was examined, as these objects "tend to transcend the boundaries between the history of a specific activity, the history of a singular society, and the history of humankind." (Engeström & Sannino, 2021). The second-generation model was inadequate in proposing a mechanism to address why individual systems in a society could not function remotely from others. For this reason, as well as to account for the impact of other influencing systems in society on the system being observed or researched, Engeström's Third Generation of Activity Theory was developed as an interactive model between the systems. (Engestrom, 2000; Engeström, 1999; Engeström, 2001).

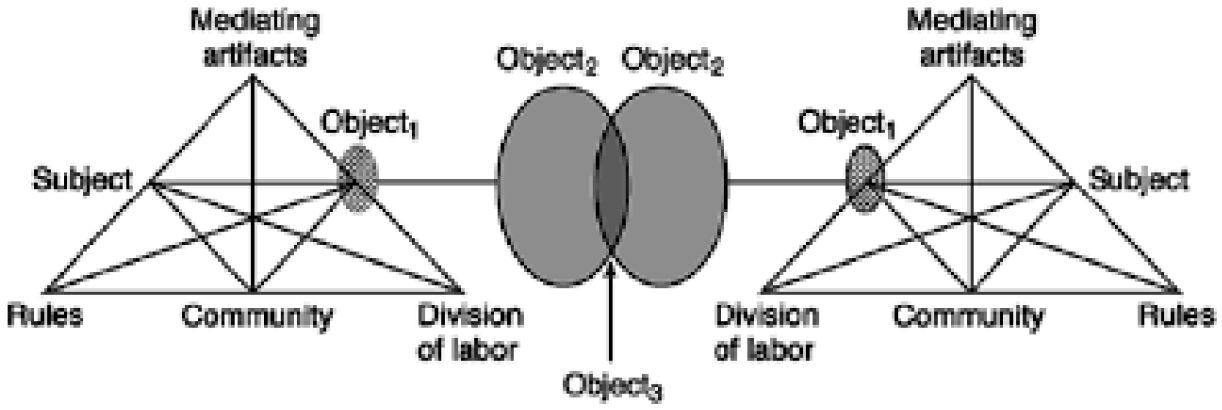

Figure 2.3 Third generation Activity System model (Engeström, 2001)

This model (Figure 2.3) demonstrates the relationships between interrelated systems in society. It introduces the concept of a shared or partially shared object between different activity systems, with a focus on how different groups or individuals within their own activity systems collaborate,

conflict, or negotiate around this shared object. This model also emphasises the importance of boundary objects and boundary crossing, where different activity systems interact, leading to learning, innovation, or tensions. In his work, Engeström solidifies this concept when he describes joint *activity* as the unit of analysis for AT, not individual *activity*, acknowledging that the motive or force for any change or development in a society exists because of the tensions or contradictions that create instability within the system (Engeström, 1999). According to Daniels, when tensions act on *subjects* affecting an *object* through mediated *activity,* both the participants and the environment are affected and changed through this process (Daniels, 2004).

In 2009, Engström suggested the possibility of a fourth generation of activity systems model (Engeström, 2009) to meet the challenges of work in today's world, as it emerged that organisations are increasingly operating in unstable and poorly bounded arrangements (Engeström & Sannino, 2021). Since the interventionist approach of third-generation activity theory may not adequately unite different stakeholders or identify or stabilise one set of stakeholders, the 4th generation model further expands the framework by considering entire networks of interacting activity systems. The fourth-generation unit of analysis will focus on the new type of activity formations at different hierarchical levels in society. Although researchers in AT believe that the units of analysis of the first three generations are effective instruments for participatory collective analysis and design, it is the fourth-generation unit of analysis that will be responsive to our current context of multi-activity constellations as well as to understanding the cultural-historical influences pervading the 21st century (Engeström & Sannino, 2021) and has become known to be a useful methodological framework for studying practice-based learning in complex learning environments (Qureshi, 2021). The authors indicate that conceptual tools and methods to analyse these processes of generating dynamic social cohesion around a shared object among heterogeneous activities are still in the developmental stage (Engeström & Sannino, 2021). Table 2.2 shows the evolution of the activity systems over four generations.

Table 2.2 Evolution of the activity systems over four generations

	First generation	Second generation	Third generation	Fourth generation
Object and problem	Challenge in individual learning or development	Collective developmental contradictions demanding on espansive solution	Developmental contradictions within and between interconnected activity systems	A critical societal challenge or crisis demanding a multi-level and cross-sectoral solution
Unit of analysis	Mediated action	Collective activity system	Minimally two interacting activity systems with a partially shared object	Coalescing cycles of expansive learning in a heterogenous coalition of activities facing a critical societal challenge
Concept of learning	Internalization of given skills and knowledge	Expansive learning cycle generating what is not yet there	Expansive learning cycle involving boundary crossing and horizontal sideways learning	Horizontal and vertical interplay between multiple coalescing cycles of expansive learning
Concept of agency	Agency as grasping the historically evolving nature and emancipatory possibilities of oneâ€™s actions	Agency as expansive movement from individual subjects and their tasks toward collective subjects transforming their activityn	Agency as recognition and negotiation of differences and complementarities	Transformative agency by double stimulation
Typical intervention	Training aimed at emancipatory understanding and mastery of oneâ€™s actions	Longitudinal process of collective analysis and redesign of the activity â†' emergence of the Change Laboratory method	Change Laboratory and Boundary Crossing Laboratory	Multiple interconnected Change Laboratories, from local to municipal, regional, national and international levels â€" with longitudinal follow-up

(Engeström & Sannino, 2021)

2.7.2 Activity Theory in Higher Education Studies

Extensive research internationally demonstrates the use of activity systems as a theoretical framework or lens to analyse the relationships, transformations, and tensions in a complex social system (Jones & Pate, 2019). Yamagata-Lynch (2010) describes complex learning environments as those where multiple people are involved in shared activities within a single organisation or multi-organisational context, and AT, therefore, is useful not only for examining or describing the current practice but also for identifying tensions or areas for development in these complex learning environments. Activity theory has applicability for understanding the complexities and concerns that impact the HE space (Bligh & Flood, 2017). This theory is sometimes known as the cultural-historical activity theory (CHAT) in some disciplinary and geographical settings, particularly across Western Europe and the Anglosphere.

Activity theory has also been lauded for having the potential to design learning environments that enable the development of complex skills (Jonassen & Rohrer-Murphy, 1999). While the authors did not specifically explore GA development, this seminal paper laid the groundwork for using AT in educational design, including the development of key skills and attributes. The AT is also purported to be particularly relevant to educational practices and outcomes in situations that have significant historical and cultural contexts and where the participants, their purposes, and their tools are in a process of constant change (Hashim & Jones, 2007). The authors suggest that this theory could apply to studying graduate attribute development. A study specifically examining the development of digital literacy skills in higher education used AT as a lens. The authors identified

tensions between institutional policies, technological tools, and pedagogical practices in developing digital literacy as a graduate attribute (Mwanza & Engeström, 2005). A study by Issroff & Scanlon (2002) using AT helped the researchers to understand the factors that shaped the entire learning situation in an HE context, specifically the interactions that impact the outcomes. Similarly, a study by Hardman (2005) highlighted the merits of AT because of its potential to illustrate how teachers' and students' development occurs through interactions within social systems, influenced by various mediating artefacts.

Another study showed how concepts from AT could be used to produce meaningful interpretations of data when evaluating learning technology outcomes (Scanlon & Issroff, 2005). In a similar vein, Cattaneo et al. (2015) used AT to examine how mobile technologies support the development of reflective skills, which is a key GA in vocational education. This theory helped to identify contradictions between traditional learning pedagogies and new mobile technologies, leading to recommendations for improving the development of reflective skills. A more recent study used the AT for the design, development, implementation, and evaluation of online courses. The model was recommended as a guide for educators to implement online learning activities which enhanced the cognitive and social presences within complex cognitive tasks (Gogus, 2023). The AT has been identified as a useful framework for providing insights into systemic factors and tensions that impact the achievement of specific educational objectives, either by hindering or facilitating them, particularly in diverse societies, like in SA (Mentz & Beer, 2021).

2.7.3 Activity Theory in Health Professions Education

The role and value of theory in HPE research are well accepted, but incorporating theory into research is difficult, especially when such theories are unfamiliar to the community (Varpio, Aschenbrener & Bates, 2017). Although there is a wide range of theories available for HPE research, many theories have not yet been applied due to the unique challenges plaguing the HPE context. Some scholars propose the concept of agency that may be harnessed by HPE researchers to identify common issues and solutions thereto, to contextual challenges. Theories of agency, like those of Butler, Giddens, AT, and Bandura (Arnold & Clarke, 2014), have been postulated to inform HPE scholarship in creative ways.

The use of AT in HPE was explored in the extant literature. For example, Gormley et al. (2020) and Ellaway et al. (2017) used AT to understand the change in medical education systems. Using this framework, the authors highlighted the importance of considering the entire activity system when implementing changes in health professions education. Similarly, the work of Grieg et al. (2012) reported that AT enabled an understanding of the dynamics of knowledge-practice in activities rather than between levels in healthcare teams.

Wearn et al. (2008) used AT to examine student experiences of peer examinations and identified how tensions and contradictions between a professional activity, namely learning clinical skills, and a social activity, namely building friendships, caused anxiety among students during peer physical examination. Reid et al. (2015) used the AT to examine the implementation of a new undergraduate medical curriculum in the United Kingdom. The authors identified tensions between traditional teaching methods and new integrated approaches, highlighting the need for cultural change in medical education.

A recent study examined the professionalisation of medical education (Morris, 2021), while other studies from the same author (Morris, 2012) drew upon AT in researching pedagogic practice in a medical school. Another recent study exploring medical education and the complexities and contradictions in authentic workplace environments recommended that medical education evolve and meet the challenges of the stakeholders involved. They called for the adoption of an interventionist approach to developing medical education with an intensification of collaboration between practitioners, patients, and communities (Engeström & Pyörälä, 2021). A study by de Feijter et al. (2011) explored how undergraduate students perceived patient safety during their transition to postgraduate training. The AT was used to understand how medical students perceived this; importantly, the study revealed contradictions between formal patient safety education received at university and informal learning in clinical settings, emphasising the need for better integration.

2.7.4 Studies using Activity Theory for Graduate Attribute Development

An exploration of the literature shows the utility of the AT in examining the development of GAs across various educational contexts. Specifically, the use of AT is highlighted when identifying systemic contradictions, understanding the role of tools and community in skill development, and

bridging gaps between academic and professional contexts. For example, a study by Varpio et al. (2017) used AT together with other frameworks to address complex problems in HPE. The authors showed how AT could identify systemic issues and potential solutions in developing key competencies for health professionals. Another study (Frambach, Driessen & van der Vleuten, 2014) applied AT to examine the cultural complexity of implementing problem-based learning medical education in non-Western settings. The authors showed how AT could reveal cultural tensions and adaptations needed when implementing medical education innovations in diverse contexts.

In a recent study at a university in Africa, the AT was used to explore students' and faculty mentors' experiences about a mentorship relationship. A feedback framework was developed guided by principles of AT to guide mentorship interactions (Mubuuke et al., 2021). In SA, the AT served as a conceptual lens to better understand the relationship between student feedback and how such feedback potentially influenced academic work. The authors reported that the influence of student feedback on teaching practices may be significantly constrained when the institutional focus was primarily on research (Petersen, Bitzer & Schalkwyk, 2020). In another study, AT was used as a framework against which reasons for absenteeism of undergraduate students in four faculties at a higher education institution (HEI) in the Eastern Cape were examined. The authors found that students' absenteeism reflected challenges regarding existence needs, compromised learning quality, and a risk to throughput, giving rise to the need for redefinition of some 'objects' and changes to departmental and institutional strategies (Scheckle, 2014).

Communication is regarded as one of the key aspects underlying high-quality teamwork in complex systems, particularly in the healthcare context, where effective team communication has been linked with improved clinical outcomes (Nurok, Sundt & Frankel, 2011). Unfortunately, healthcare, which has traditionally relied on the autonomy of the individual practitioner, has been slow to accept this reality (Lingard, 2012). Based on the extant literature, team communication has become a standard component of HPE both internationally (Reimschisel et al., 2017) and in South Africa, as outlined in the regulatory (HPCSA) standards. To this end, the collaborative nature of healthcare teams is heavily reliant on individual communication skills, including the capacity to effectively express clinical information and listen to colleagues and patients carefully (Foronda, MacWilliams & McArthur, 2016), making the interaction between good team communication and individual communication critical for the provision of high-quality care (O'Daniel & Rosenstein, 2008).

2.7.5 Effective Communication and Activity Theory

Effective communication is then integral to the AT, as communication principles permit interaction among individuals within a system, allowing for the attainment of shared goals and the smooth operation of complex activities. Kim (2020) notes the need for language pedagogy to facilitate intercultural communication in today's healthcare contexts. He postulates that such pedagogies must extend beyond just language and culture and consider individual action, mediating tools, and larger social realities, as explained in the AT. In a healthcare context, particularly in the diverse South African setting, the activity system is in a constant state of change as varying tensions emerge at different times among the 'mediating elements'. Any shift in the form or function of the 'community' element within an activity system, therefore, will require consideration of new interactions and responses within the linked elements and vice versa (Scheckle, 2014).

An exploration of AT and effective communication would involve how the theory's principles and concepts align with the development and display of effective communication skills within the realm of healthcare professionals. Integration of AT with language learning and communication GA has been demonstrated, where several studies explored the development of effective communication using AT in healthcare contexts. Storch (2004) explored how language was learnt in an English second language university context as an entire activity system. Similarly, a study by Kim and others (2019) who examined the dynamics of peer interaction across writing tasks showed how two groups working on identical tasks created very different interactions, which changed within each group across time. These studies highlighted how language learning is embedded in cultural activities and identified factors that inhibit or facilitate intercultural communication.

AT considers the unit of analysis to be an activity, which is collective and requires communication and interaction between practitioners since learning occurs through activity and collaborative engagement (Chaiklin, Hedegaard & Jensen, 1999). Within the AT, the subject (individuals, groups, or organisations) of the activity always acts indirectly through action mediated using tools, which may be tangible or intangible and have culturally specific meanings (Yamagata-Lynch, 2010). A recent study (Mnaymneh et al., 2021) used AT to show that health professionals engaged in difficult or challenging processes independently should receive assistance and guidance as part of their multi-disciplinary team (MDT)-related learning outcomes, of which communication was a critical part. In this study, AT exemplified the dynamic nature of MDT

collaboration and acknowledged distributed leadership and the importance of successful partnerships in a clinical setting.

Therefore, using the development of the effective communication GA as a unit of analysis (comprising both student and educator activity systems) enabled an in-depth exploration of the interactions among the four groups in this study.

2.7.6 Activity Theory in the Current Study

Communication is an intrinsic facet woven through each of the components of this theory, and all components were applied as it informed my choice of participants to answer the research question.

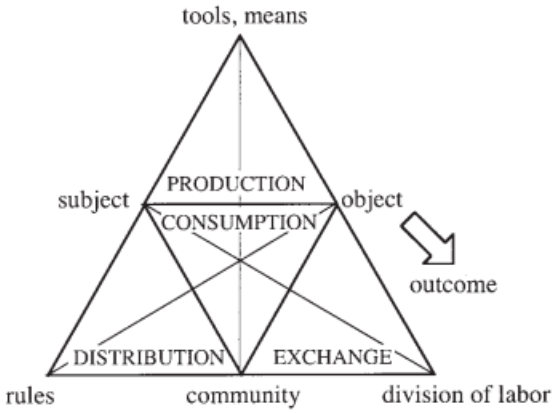

Figure 2.4 Engeström's activity theory diagram (Engeström, 1987; Roth, 2004)

2.7.6.1 Components of the Activity Theory

According to Engeström, the analysis is conducted from the **subject's** point of view, forming the focus of the action. In the context of this study, the subjects are final-year students and new graduates in clinical who are meant to harness effective communication to facilitate information exchange and coordination of patient care through collaborative, professional, and ethical means.

The **object, being** the central focus to which the activity is directed, ultimately leads to an outcome in an activity system with the mediational influences of the social environment (Roth, 2004). In the context of this study, this is the development of effective communication.

The **tools** mediate the interactions between the subject and the object to shed light on the culture of their creators. In the context of this study, the artefacts will be the curriculum, teaching method, assessments, and the DUT Standard for the broad GAs, from which the effective communication GA will be the focus.

Rules define how subjects must fit into the community and refer to the explicit and implicit regulations, norms, and conventions that limit actions and interactions within the activity system (Engestrom, 1987). In this study, these refer to academic standards, communication protocols, and adherence thereof within the healthcare domain, as well as the ethical guidelines that align with professional standards.

The **community** consists of multiple individuals who share the same general object (Roth, 2004) and encompasses the idea that an activity takes place within a social and cultural context or within the environment where the subjects operate (Pather, 2012); in this study, these are the educators, peers, patients, and other members of the healthcare team.

The **Division of Labour** refers to the role that each individual in an activity system plays in the pursuit of achieving the object of a particular activity. In this study, various healthcare members necessitate communication at a specific level to ensure that each team member comprehends their duties and contributions to the overarching care framework.

The **outcome** can be described as both the purposes of the actions and the goals of the community in an activity system (Engeström, Miettinen & Punamäki, 1999). In this study, the outcome would be a high quality of patient care, for which effective communication has a crucial role, as it contributes to patient communication and education, teamwork, and accurate diagnoses.

2.7.7 Limitations of the Activity Theory

Although AT has been widely used in HE contexts, including healthcare, there are a few limitations worth noting. It is suggested that AT does not adequately problematise the concept of community and that it falls short in highlighting the sources of subjects' motives in wider sociological frames (Pratt et al., 2015). Another limitation reported was that of a lack of a clear definition of contradiction (Murphy, 2022), as well as a lack of understanding of how individuals (subjects) internally respond to the practice tensions they experience (Cotterall, 2013). One author recommends that AT could be complemented by Bernstein's and Bourdieu's theories, or those of metacognition (Bligh & Flood, 2017).

Despite these limitations, the use of AT can be adopted in a wide range of roles in empirical HE research, including healthcare research (Bligh & Flood, 2017). The development of communication research appears to be an area with potential for further development. Its emerging role within as well as its future in HPE has been recently expounded upon (Conn et al., 2020). Furthermore, its potential is backed up by previous studies in the literature; for example, a study by Lingard (Lingard et al., 2005) suggests further use of the AT to provide insights into the complex nature of interprofessional communication in healthcare settings, which is relevant to SA. To advance this field in SA, one should consider explicitly applying AT to analyse the development of effective communication in various South African healthcare contexts, as well as explore how the unique cultural and socioeconomic context of SA influences this development. This study sought to understand the perceptions and experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace.

2.7.8 Justifying the use of the Activity Theory in this study

As outlined above, I considered other theoretical frameworks to interpret the data obtained from my study. However, my decision for selecting AT, as opposed to experiential learning, sociocultural, or constructivist theory, was that the AT offered me the 'practical activity systems models' through which I could interpret my data. In addition, most academic work is situated and contextualised (Van Lankveld et al., 2017), making it susceptible to various influences within

university environments. Since the AT recognises the importance of context through its components, it strengthens its relevance as an analytical lens. Bernstein (2000) theorised that knowledge in the work context and society is quite differently structured from academic discourse. Bernstein viewed academic knowledge as having a vertical structure and, by virtue of its abstract language and guiding principles, would not easily integrate with the more context-bound nature of work knowledge, which he considered to be a horizontally structured discourse. Bernstein (2000) further went on to point out that 'recontextualised' knowledge may be quite different from its origins. Activity theorists like Tuomi-Grohn and Engestrom (2003) conceptualised knowledge transfer between work and academia as a boundary-crossing process between different activity systems, where new knowledge emerged in the spaces between the two.

The contradictions arising from the activity system as well as from the questioning of established, historically ingrained practices and the accumulation of these contradictions encourage or enable the movement away from 'norms' towards new, more inclusive ways of doing (Garraway, 2010). Therefore, the AT lens provided an avenue to explore how such contradictions or discrepancies shape and influence the development of the effective communication GA in the participants. For me, this is important because it helped explain why individuals experience and develop in different ways in a professional activity, like effective communication in my case, even though they may undergo similar programmes. In this way, it offered an understanding of how particular contexts could shape and guide the development and experience of effective communication GA in educators, students, and graduates. This was important, as data was collected from participants in four groupings; additionally, students undertook their clinical practice training in different units, and, inevitably, they were exposed to different conditions in their experiences of developing this GA.

As Engeström (2009) explains, an activity system model serves as a conceptual tool for researchers to analyse and design activities. These models have also been recognised and proven to be effective research tools, analysing concrete data while taking into account the historical context of the circumstances being investigated, which is very pertinent to my study. Engeström (2009) further describes how "*in concrete studies, the model itself needs to be tested and filled with historically specific contents." (pg 24).* This is in congruence with my study, which is concerned with identifying the tensions and contradictions within and between the components of a system, with consideration to the historicity of each complex activity system (context).

The AT also enabled me to analyse change as a transformation process punctuated by these contradictions, particularly in contexts where multiple strands of socio-historical contexts manifested themselves in the performance of activities (Kaptelinin & Nardi, 2009). It therefore appeared to be an appropriate framework through which to explore the interaction and subsequent unfoldment that takes multiple contextual aspects into account (Zomer et al., 2021).

Furthermore, this framework allowed me to examine the interactions between the various components within the system, which may influence the shared actions and activity in the clinical and academic contexts, as well as the relationships between systems in society with shared interests. An AT perspective allowed an analysis of the experiences of participants in different contexts while developing the effective communication GA, including university culture and curricula, student preparedness, language and cultural issues, clinical contexts and environments, teaching, and assessment practices. This was envisaged to be useful for exploring the roles that contexts contribute towards the development of this GA. This was done in relation to the research questions linked to understanding the experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace.

2.8 Conclusion to Chapter Two

In this study, I sought to understand the experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace.

Chapter Two explored policy documents regarding the recommendation and development of GAs and outcomes at a national level (e.g., the Green Paper, SAQA), as well as at an institutional level (the DUT standard). An overview of the various conceptualisations of GAs and definitions used in the literature was provided. I then proceeded to highlight the skills and attributes valued in the health profession and then provided both international and local perspectives on the perceptions and experiences of students, new graduates, and clinical and academic educators regarding the development of GAs in preparation for the workplace. The chapter then examined the extant literature for approaches to developing effective communication GA and culminated in the

introduction of educational theories. I then discussed the Activity Theory (AT), its application to HE, and the key concepts used in this study.

The value of the AT was then described in the context of HPE, and the versatility of AT in exploring various aspects of healthcare communication, from interprofessional collaboration to the impact of new technologies, was outlined. Research that showed how AT could provide insights into the complex systems of healthcare communication, identify contradictions and tensions, and inform improvements in practice was discussed. In the context of this study, using the AT as a lens fits well with the focus of understanding the experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace. An additional value of the AT is its focus on the entire process that leads the individual to develop effective communication in this context and how personal, social, and environmental factors can enable or hinder this process.

In the next chapter, I describe the research methodology and methods used to understand the experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA in preparation for the workplace.

CHAPTER THREE

METHODOLOGY, METHODS AND ANALYSIS

3.1 Introduction

Chapter Three builds on the philosophical foundations of the chosen methodological approach, detailing the research design, the study's population and sample selection, data collection instruments, data collection and analysis procedures, key issues of trustworthiness, and the ethical considerations that underpin this study.

Crotty's (1998) framework for conceptualising the four key elements of the research process in a sequence of critical decisions, beginning with the research methods, was utilised. Crotty (1998) used the connection between epistemology (theory of knowledge embedded in the theoretical perspective) and theoretical perspective (philosophical stance informing the methodology), methodology (a strategy, plan of action, process, or design underlying the choice and use of a particular method), and methods (techniques or procedures used to gather and analyse data) as an example of a connective chain of the research process. The rationale therefor is that the methods are framed by the methodology, which in turn is shaped by the theoretical perspective, which is reflective of the epistemological assumption (Chan & Clarke, 2020).

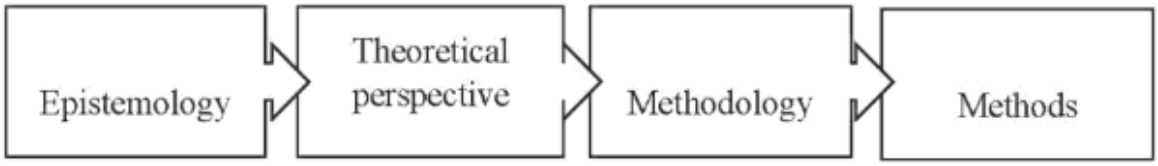

Figure 3.1 Connective chain of the research process (Crotty, 1998)

This framework illustrates that the methodology and research methods of a study are underpinned by the theoretical perspective (or paradigm) and its accompanying epistemological obligations to determine how the research will be conducted.

3.2 Research Paradigm

The purpose of this study was to understand the perceptions and experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of effective communication GA in preparation for the workplace using perspectives from an activity theory framework. Therefore, I needed to adopt a design that would complement such an exploration. With this in mind, my study was positioned in the interpretivist paradigm. Interpretivist researchers appreciate that reality cannot be objectively measured and instead that reality is constructed by an individual's meaning of events, i.e., as others experience it (Broom & Willis, 2007); so interpretivism was the paradigm most suitable to guide the research process since the aim was to gain a better understanding of the perceptions and experiences of my participants' realities.

The epistemological belief in this study is that knowledge is linked to the meanings individuals assign to their experiences, contexts, and interactions. The ontology is based on my personal experiences as a Clinical Technologist and academic, which included patient care, student support, and formal academic work that defines my professional role. Since interpretivism allows researchers to explore individual experiences by interacting with them and interpreting the data to deduce a representation of their worlds, I used a qualitative research approach for the study.

3.2.1 The Qualitative Research Approach

Qualitative methodology, which is defined as an approach to exploring and providing deeper insights into real-world problems (Broom & Willis, 2007), allowed me to engage with things that matter in ways that matter (Mason, 2002). While qualitative research places the researcher in the real world, it places emphasis on the whole human experience and the meanings assigned by individuals who are living the experience (Delport, Fouché & Schurink, 2011). This approach was suitable for my study because the study's objectives were best explored qualitatively since the research questions posed could not be evaluated through experimentation or measured in quantitative terms using statistics (Creswell & Poth, 2016). In addition, the purpose of the study was not to compare or generalise findings but to help broaden the understanding of the experiences of students, new graduates, and academic and clinical educators within the Clinical Technology (CT) programme at the Durban University of Technology regarding the development

of the effective communication GA in preparation for the workplace.

3.3 Justification for Choice of Methodology and Methods

The chosen methodology and methods for understanding the experiences of students, new graduates, and educators regarding the development of effective communication as a GA align with several recent studies in this field. The qualitative approach, aligned with the interpretivist paradigm, was congruent with research on this phenomenon in the extant literature. For example, the seminal work from Barrie (2006) exploring academics' understandings of GAs (see *Chapter Two, 2.4 Graduate Attributes*) used a qualitative approach with a phenomenology design to understand the different conceptualisations thereof. A recent systematic review (de Mendonça, de Carvalho & Pacheco, 2024) of interprofessional communication development among medical and dental students identified most approaches using a qualitative slant. Similarly, in the South African context, the works of Matthews & Naidu (2019), Withering (2019), and Bitzer & Withering (2020) qualitatively explored how students understood and related to GA through focus group discussions (FGDs). The inclusion of multiple stakeholder perspectives aligns with the work of Coetzee (2014), who measured student 'graduateness' by considering perspectives from undergraduates, new graduates, and postgraduates in SA. Also, a study by Naidoo et al. (2018) incorporated multiple perspectives of students, community physiotherapists, and clinical supervisors to understand student preparedness for practice.

However, my approach differs from more quantitative studies like that of Griesel and Parker (2009), who used surveys to gather data about GAs from employers in SA (see *Chapter Two, 2.4.9*). The authors did mention the limitation of a quantitative approach to their study; the qualitative methodology in my study allowed for a deeper exploration of contextual factors, which is particularly valuable given the specific focus on the CT programme at the Durban University of Technology. Finally, this study responds to calls by researchers like Bitzer (2016) for more context-specific investigations in South African HE research.

3.4 Research Design

This study used a phenomenological research design. Phenomenology is an approach that seeks to describe the essence of a phenomenon by exploring it through the perspectives of those who

have experienced it (Neubauer, Witkop & Varpio, 2019). Given that the broad aim of the study was to seek to understand the experiences of students, new graduates, and academic and clinical educators within the CT programme regarding the development of effective communication GA, the project needed to engage 4th-year students, new graduates, and clinical and academic educators to understand the phenomenon. I chose the phenomenological approach since it allowed me to delve into these subjective experiences while acknowledging that the phenomenon of effective communication GA development is experienced differently by different participants yet may have shared essential characteristics. In addition, the philosophical assumption underlying phenomenology is that truth can be found and can exist within the individual lived experience (Spiegelberg, 2012). Phenomenology is also in line with the interpretivist paradigm; hence, this choice of design was appropriate. Although a case study approach could have offered valuable insights into the HEI's implementation of the communication GA development as a system, it would have displaced the focus from participants' individual experiences to institutional processes and contexts (Creswell & Poth, 2016).

3.5 Research Methods

3.5.1 Study setting

The research was conducted at Durban University of Technology (DUT), Faculty of Health Sciences, in the Clinical Technology programme, from the Department of Biomedical and Clinical Technology. The profile of students reflects a predominantly female and Black African composition, with a smaller proportion of students from the Indian ethnic group. The DUT is regarded as a previously disadvantaged HEI, and the university is known to attract students from diverse backgrounds, many of whom are 'first-generation' learners (Wilson-Strydom, 2017) and may not have adequate preparation for the transition into the HE spaces[6].

[6] See *Background* and *Context* in Chapter One for a detailed description of the context

3.5.2 Population

This study comprised four groupings, namely 4th-year students, new graduates, and academic and clinical educators in the Department of Clinical Technology at the Durban University of Technology.

There are currently 2601 students registered in the faculty of health sciences at DUT. The sample was drawn from those registered in the CT undergraduate programme (n = 180), from which all final-year students in the CT programme (n ~ 38) at DUT and newly graduated practitioners (n ~ 25) from DUT were invited to participate, as they have insight into the phenomena being studied. Final-year students are placed in the clinical training environment from 3rd year onwards and are expected to complete the clinical practice component to prepare them for independent practice.

Academic educators involved in the academic (n ~ 4) and clinical educators (n ~ 17) were included in the study. Academic and clinical educators are experts in the facilitation of CT training and therefore able to answer the research question from the educators' perspective. Academic staff members are employed in the CT programme and are involved with the curriculum design process as well as in the formal instruction of various modules in the course. Clinical educators are placed in private and public training units and are official DUT clinical instructors. They oversee the development of clinical competencies in the respective subspeciality and are guided by a standardised curriculum and clinical learning outcomes from the university. Clinical educators are orientated and are developed to undertake the required tasks.[7]

3.5.3 Sample

This study comprised four groupings. The sample size was evaluated on an ongoing basis and appraised for its adequacy in terms of analysis depending on the knowledgeability of the participants and the richness of the discussion to avoid producing what is known until information power was reached (Malterud, Siersma & Guassora, 2016). I decided to use information power, as it presents an alternative to data saturation, which has been suggested as being inappropriate as a generic quality marker (O'Reilly & Parker, 2013). Information power suggests that the more

[7] See *Clinical Practice component* in 2.4.5.1 for more context of their roles.

relevant information (richer) the sample provides for the study, the fewer the number of participants needed; therefore, the adequacy of the sample, the quality of the data, and the variability of relevant events are more important than the number of participants (Malterud, Siersma & Guassora, 2016). Information power is satisfied when a study offers new insights that contribute substantially to or challenge current understandings of a phenomenon; therefore, a purposive sample of six to ten participants with diverse experiences was deemed sufficient to ensure adequate information power (Malterud, Siersma & Guassora, 2016).

3.5.3.1 Inclusion Criteria

All students in the final year of the Clinical Technology programme at DUT, newly graduated practitioners from DUT, and educators involved in the academic and clinical instruction in the Clinical Technology programme at DUT were invited to participate in the study, with the focus being on reaching information power.

3.5.3.2 Exclusion Criteria

Students who are not in the final level of study at DUT, graduates who completed the qualification elsewhere, or who were in independent practice more than 12 months after graduation at the time of recruitment.

3.6 Recruitment and Enrolment

3.6.1 Sampling strategy: Purposive sampling

When conducting qualitative research, the selection of participants must align with the researcher's positionality, practical constraints, and methodological rigour. Qualitative research uses non-probability sampling, as it does not aim to produce a statistically representative sample or draw statistical inference (Creswell & Poth, 2016). In this regard, qualitative research can be viewed as a form of social inquiry that examines how people interpret and make sense of their experiences and the world around them (Broom & Willis, 2007). A broader understanding and deeper insight into complex human behaviours thus occur (Creswell & Poth, 2016; Polit & Beck,

2012). The qualitative research approach also focuses on the interpretation of a phenomenon from an individual's frame of reference (Creswell & Poth, 2016). For this study, I considered final-year CT students, new graduates, and academic and clinical instructors at the DUT to be participants who could provide me with the data to answer my research questions. I therefore chose purposive sampling.

Purposive sampling is used for the identification and selection of information-rich cases for the most effective use of limited resources (McMahon & Patton, 2002) and is a form of non-probability sampling. This sampling method involves identifying and selecting individuals or groups of individuals who are extensively knowledgeable about or experienced with the phenomenon of interest (Cresswell, 2013). When sampling in a purposive, non-random manner, the number of participants in a study is less important than is the criteria used to select them.

In my study, the rationale for using final-year students was to understand how students experienced the effective communication GA, as it had been developed in both the classroom and clinical environment in their undergraduate years while under supervision. Newly graduated technologists work as independent practitioners and would have had firsthand experience with the development of the effective communication GA throughout their training. Their insights would be particularly valuable in understanding how effective communication was developed and the extent it prepared them for independent clinical practice. The rationale for including academic educators only from the DUT CT programme stems from their involvement with the development of effective communication through the DUT context. Clinical educators were selected since they are considered experts in their specialities (clinical technologists with a minimum of five years of experience in the development and coordination of CT training for undergraduate CT students in the SA HE environment) and are responsible for the clinical training of CT students.

Therefore, purposive sampling allowed me to deliberately select these participants who had directly experienced the phenomenon (specifically students and new graduates who have engaged with communication skills development and educators who have facilitated this process) from a variety of clinical contexts to yield rich, thick data. Purposive sampling also aligns well with phenomenological methodology, as it aims to select participants who can offer detailed experiential accounts, as opposed to just statistical representativeness.

3.6.2 Recruitment

3.6.2.1 Final year students and new graduates

After UCT HREC (Appendix 4) and DUT gatekeeper approval (Appendix 5), purposeful sampling was used for these groups, as it is geared towards maximum variation and allows for a wide variety of participants to be included in a research study to gather a diverse perspective on phenomena (Palinkas et al., 2015). For students, a short information session took place during an existing class, where the study was explained. Final-year students from seven (7) units out of a total of 17 where students were placed for 2024 volunteered for participation (of which the cardiology and Nephrology categories had the highest number of student placements). The distribution of speciality categories is shown in Table 3.1.

Table 3.1 Distribution of student participants

Hospital	Speciality Category	n
A	Cardiology	1
	Neurophysiology	2
	Nephrology	1
	Critical Care	1
B	Cardiology	2
	Reproductive Biology	1
C	Nephrology	2

For new graduates, invitations were sent to their official DUT email address by me detailing the purpose and intention of the study, with a letter of information (Appendix 6a) for those interested. All participants were informed that participation was voluntary and that they may withdraw at any time during the study. In addition, it was reiterated to students that non-participation will not affect their academic performance. Confidentiality was also explained. Only when participants understood the study and what their participation entailed was a consent form provided to interested participants and obtained by signature on the form (Appendix 7**)**. Confidentiality was

maintained by using a secure virtual platform, which participants could access only with their official DUT4life email address; the data set was anonymised before sharing with supervisors for guidance on the open coding process.

Three focus groups were conducted, after which information power was satisfied. These FGDs lasted approximately 60 minutes per group using a guide (Appendix 8). FGDs were conducted by a researcher experienced in qualitative data generation, who was not the lecturer, to balance the power dynamics.

3.6.2.2 Academic and clinical educators

After UCT HREC and DUT approval, purposive sampling was used to recruit academic and clinical educators involved with the CT programme. I invited potential participants via their official DUT email detailing the purpose and intention of the study, with the letter of information (Appendix 6b) to voluntarily participate. All participants were informed that participation is voluntary and that they may withdraw at any time during the study. Confidentiality was discussed with the participants, and the names and any identifying details would be left out of the transcription and data analysis process to maintain the anonymity of participants. Those interested were then provided with a consent form, obtained by signature (Appendix 7). Participants received the link to securely access the session for the interview (Appendix 9) using their DUT4life access.

3.7 Research Procedures & Data Collection Instrument

This study conformed to the World Medical Association Declaration of Helsinki on Ethical Principles for Medical Research Involving Human Subjects (Organization, 2013) within the five general principles related to ethical practice, namely beneficence and nonmaleficence, integrity, fidelity and responsibility, justice and respect for people's rights, and dignity. Before data collection, study approval was obtained from the Department of Health Sciences Education Research Committee, and ethical approval was sought and obtained from the Faculty's Human Research Ethics Committee for the inclusion of human participants (Appendix 4). Following ethical approval, gatekeeper permission was sought and obtained from DUT for the participation of students and staff (Appendix 5).

The data collection tools for this study comprised two semi-structured interview schedules and two focus group schedules. The first interview schedule (Appendix 9) was used for interviews with academic educators, and the second for interviews with clinical educators (Appendix 9). Two focus group discussion schedules were used; one was for 4th-year students (Appendix 8) and the other for newly graduated clinical technologists (Appendix 8). These tools will be discussed below.

3.7.1 Focus Group Discussions

Objective 1: To explore the perceptions and experiences of final-year students and new graduates regarding the development of the effective communication graduate attribute within the CT programme.

The use of focus groups provides direct interaction with respondents, is inexpensive, is easy to interpret, and can be utilised early in the study to lay a foundation after which other methods may be applied if needed (Stalmeijer, McNaughton & Van Mook, 2014). A focus group schedule is comparable to an interview schedule, with the key difference being that the questions are directed to the whole group, and the responses are open for discussion to the entire group (Polit & Beck, 2012). The interviewer (PO) assumed an active listening role while interacting with participants to focus on the phenomenon of interest and their lived experiences, as guided by six open-ended questions that allowed participants to hear each other's stories and add their own perspectives and insights as the story unfolded. In this study, the focus groups were used to gather an understanding of the different perspectives of students to achieve the study Objective 1. Two focus group discussions (Appendix 8) were realised with ten consenting 4th-year CT students regarding their experiences of the development of the effective communication GA during the programme, and one FGD was conducted with five new graduates. In addition, the extent to which it prepared them to transition smoothly into clinical practice was explored. To balance the power dynamics, these FGDs were conducted by an external moderator, who was not a member of the CT programme but was very familiar with the curriculum as well as the clinical practice dynamics, in line with the recommendation from Krueger & Casey (Krueger & Casey, 2000), who stated that a moderator should possess sufficient background knowledge on the topic of discussion to contextualise the participant feedback and be able to effectively follow up on key areas of concern. Furthermore, this practice was supported by Stalmeijer et al. (2014), who contended that

researchers should refrain from assuming moderator roles to prevent their own assumptions from influencing the process. The research questions were deemed adequately, after analysis, answered, and no further FGDs were necessary.

3.7.2 Semi-structured interviews

Objective 2: To explore the perceptions of academic and clinical educators regarding the development of effective communication GA within the CT programme.

An interview schedule was utilised to guide interviews with academic and clinical educators (Appendix 9). Semi-structured interviews guide a purposeful approach to obtain evidence whilst still being conversational and situational (Cousin, 2009; Polit & Beck, 2012). This approach enables the gathering of rich insights and narratives, thereby tapping into multiple layers of meaning to create a thick description (Cousin, 2009). Semi-structured interviews are an effective way of understanding the core of a participant's experience from their perspective through reflections and stories to which the participants relate (Cousin, 2009). Brown and Danaher (2019) also found that interviews had a better response rate than mailed questionnaires, which made semi-structured interviews a plausible choice for data gathering in my study.

The interview schedule utilised for academics comprised six open-ended questions. Four semi-structured, open-ended interviews (Appendix 9) lasting approximately one hour each were conducted with four academic educators and six clinical educators. This discussion explored both academic and clinical educators' conceptualisation of GAs, how they valued GAs in the development of students into graduates, and the extent to which students were able to demonstrate this GA appropriately at the point of graduation. The focus then shifted to the effective communication GA, and participants were asked to reflect on the extent to which they thought effective communication skills were developed throughout their undergraduate years. They were then asked about how this GA was developed in their modules and probed about the contextual challenges that may have been experienced due to multicultural and multilingual interpersonal and resource factors in the workplace environment. They were then asked to make recommendations for programme refinement, if necessary, to improve the development of this GA.

3.8 Data Generation

Data collection and generation took place from 27 June 2024 to 13 September 2024. As anticipated, there were delays and unforeseen events that occurred during this time, which affected the logistical planning. These delays arose from the variable availability, schedules, or willingness of participants, as data needed to be collected from four groups of participants. The duration of interviews and observations varied among participants, which also impacted the data production schedule. Student and new graduate FGDs took place after hours to offer all participants an opportunity to be present; however, this timeslot invariably meant that some participants were tired after the day's exertions, which may have compromised the quality of responses received. Academic and clinical educators were interviewed at their availability, which spanned office hours to after hours and, on one occasion, a Saturday morning. Table 3.2 presents a summary of the data generation, outlining the guide used for each group and the approximate duration of each data collection strategy.

Table 3.2 Summary of data collection

Activity	Who/what	Number	Duration	Tool
FGD	4th-year students	10	98 minutes	Appendix 8
FGD	New graduated	5	96 minutes	Appendix 8
Face-to-face interviews	Academic Educators	4	55 - 70 minutes each	Appendix 9
Online Interview	Clinical Educators	6	60-75 minutes each	Appendix 9

3.9 Data Management and Storage

The data collected during the generation phase was organised by transcribing the data verbatim. I stored all electronic data on an external hard drive, in password-protected files, with access restricted to everybody but myself. For the semi-structured interviews, each participant was

allocated a different folder where their information and data were stored, which allowed for easier management of individual data. Each focus group for both final-year students and new graduates was also allocated separate folders, including such information as consent forms. All printed and written records were filed and stored in a secure and locked cabinet in my office on the MLS Sultan Campus, in the Department of Biomedical and Clinical Technology at the Durban University of Technology. Following institution protocols, the records will be kept for a minimum of five years and destroyed by shredding after five years of storage.

3.10 Data Analysis

Qualitative data generation and analysis is an ongoing process of inductive reasoning, thinking, and theorising that necessitates constant reflection and interrogation of the data (Creswell & Poth, 2016; Delport, Fouché & Schurink, 2011). This approach provides structure, order, and significance to the data by reducing it and identifying noteworthy patterns (Bezuidenhout & Cronje, 2014). Data analysis may be defined as the process of extracting useful information to make decisions by collecting, transforming, processing, and analysing raw data (Kothari, 2004). The data must be transcribed promptly so that the researcher can identify developing variations and similarities when comparing data (Delport, Fouché & Schurink, 2011). To this end, various sorts of coding, such as descriptive and process codes, must be applied to the transcribed data (Delport, Fouché & Schurink, 2011).

In HPE research, qualitative approaches from a variety of disciplinary traditions have been applied over time (Thompson Burdine, Thorne & Sandhu, 2021), but the data analysis is typically associated with certain principles, as described by Denscombe (2017). Qualitative data analysis should be an iterative process where data generation and analysis occur simultaneously at times. It is an inductive process that begins at a specific level and gradually moves towards abstract or broader concepts. Finally, it is researcher-centred, where the values and experiences of the researcher play a significant part in the analysis (Denscombe, 2017).

Thematic analysis (TA) was used to analyse the data generated from the interviews and FGDs using Braun & Clarke's framework. Braun and Clarke (2006) describe TA as a useful tool for providing a rich, detailed, and complex account of the data and say it was appropriate for this study since it allows for the identification of consistent ideas across data sets. In addition, TA

offers accessibility and flexibility for researchers new to qualitative methodology and does not impose a rigid theoretical framework (Braun & Clarke, 2021).

In this study, all the voice recordings were downloaded and then transcribed verbatim onto MS Word documents and saved on my desktop. These transcripts were then uploaded onto NVivo V11, which was the preferred software of choice, which allowed me to manually code the transcripts. So, I focused on each data set individually, where I read and listened to each transcript separately and at different times to allow me to obtain an overall sense of the data. I then proceeded to examine the meanings embedded within each transcript, followed by an examination across the different data sets comprising the database (a data set refers to individual interviews and FGDs). I used an open coding strategy, described as a process for "identifying, analysing, and reporting patterns (themes) within data" (Braun & Clarke, 2006), to analyse the FGDs and interviews after immersing myself in the data by reading and rereading the verbatim transcript, using the research questions as a guide. Codes served as the foundation for themes, and categories were developed from these codes, with these further abstracted into sub-themes and themes (Braun & Clarke, 2006). I then grouped the codes to develop categories and themes from the transcripts.

During the thematic analysis phase for the interviews and FGDs, the six phases proposed by Braun and Clarke were followed. These phases include becoming familiar with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and finally, producing the report. Table 3.3, derived from Braun & Clarke (Braun & Clarke, 2021), encompassing the following steps: 'familiarisation, coding, generating initial themes, reviewing and developing themes, refining, defining, and naming themes, and writing up' shows how these six levels were implemented for thematic analysis of these data sources.

Table 3.3 Six phases of thematic analysis

Phase	Application
Familiarising oneself with the data	Data was transcribed, prepared, read, and re-read with the creation of comments on the transcript with my initial ideas
Coding	Each data set was initially read for descriptive trends, followed by a cross-reading across the data sets. Codes were organised and grouped to form categories
Generating initial themes	Categories were collated into possible themes
Reviewing and developing themes	Themes were reviewed to determine how they related to the codes and categories
Refining, defining and naming themes	Themes were refined, redefined, and given appropriate names
Writing up	Themes were then connected back to the research question and the literature

3.10.1 Phase 1 analysis

All transcripts were recorded and then captured electronically, which allowed me to familiarise myself with the data while checking for accuracy between the audio and textual recordings. Following the practice of thematic analysis (Braun & Clarke, 2006), no coding was done during my first reading of the transcripts[8]. I followed this with more focused reading where I sought to immerse myself in the data. As highlighted by Braun & Clarke (2006), the research process and should be conducted to the degree that the researcher possesses sufficient familiarity with the breadth and depth of the content.

[8] The transcripts yielded approximately 420 pages of raw data

To begin this intensive iterative process, I initially explored each of the transcripts using NVivo's word frequency query function for each of the groupings to generate a word cloud[9]. This provided a preliminary visual representation of the main terms and identified potential areas for focus in the dataset (Figure 3.2).

Figure 3.2 Visual representation of main terms generated from 4th year students' FGD transcripts

Following this exploratory phase, I conducted detailed line-by-line manual coding of the transcripts to identify prominent statements, patterns, and emergent concepts. I assigned descriptive labels to the codes within NVivo to capture the essence of the responses from participants (Figure 3.3), which was informed by the research questions. During the manual coding, I asked myself if each statement was essential for understanding the phenomenon being studied and if it could be abstracted and labelled – only then were these statements included (Moustakas, 1994). To make meaning thereof required a constant orientation towards the research question as a point of reference.

[9] See *Appendix 10*

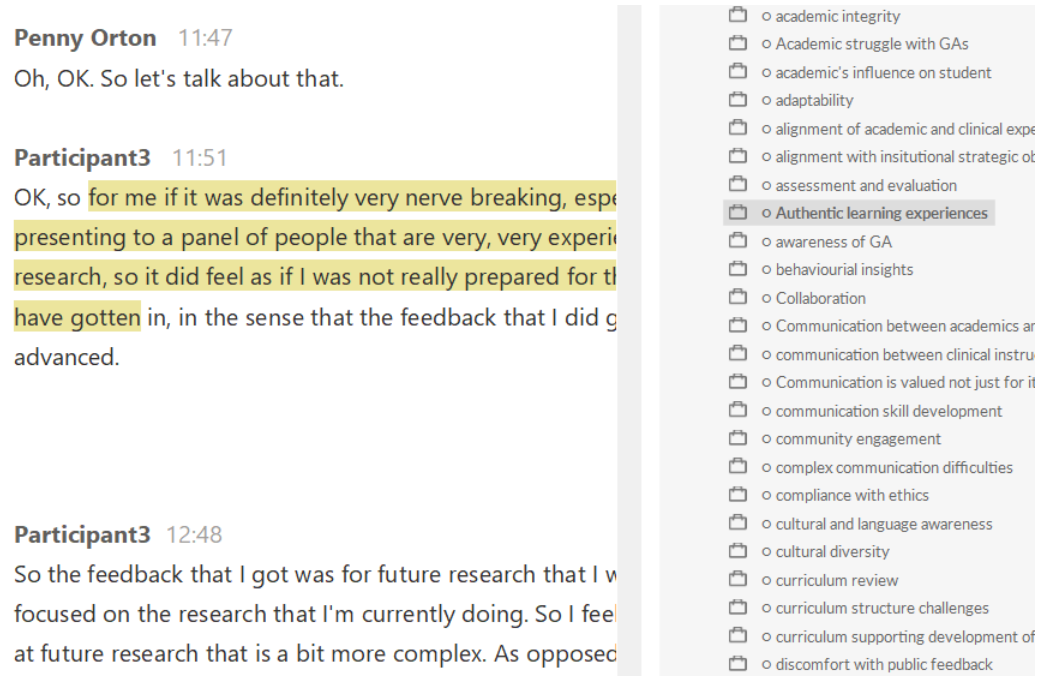

Figure 3.3 Example of assigning a descriptive label (code) to a participant's response.

Using the research questions as a guide, I then engaged in an iterative process of reviewing and refining the developed codes and systematically grouped them based on their conceptual similarities, which contributed to the generation of broad categories (See Appendix 10). I first exported the codes from NVivo to Excel and created a spreadsheet with columns for the original quote, a brief description of the quote, and a proposed category name. I then reviewed each code systematically and consulted with my supervisors to provide objectivity as 'independent judges' and to also check for consistency under the categories that were developed. The development of broader conceptual categories allowed me to visualise my data easier and identify the coding hierarchy, enabling me to identify patterns between codes (Table 3.4).

Table 3.4 InVivo analysis and hierarchy of codes and initial creation of broad categories (example from 4th year CT students FGD)

Conceptual category	Case counts	Cat counts
Adapting communication to difficult situations	1	20
Student experiences of engaging in high-level EC activities	2	17
EC preparation for the clinical workplace	2	15
Navigating language diversity in the clinical workplace	2	12
Navigating cultural diversity in the clinical workplace	2	9
Clinical staff support in developing EC	2	7
Conceptualisation of GA	2	7
Development of EC in the curriculum	2	7
Real-world practice in EC	2	7
Development of EC in clinical workplace	2	6
Transformation in the development of EC	2	5

I then imported this structure back into NVivo by creating new parent nodes and reorganised existing codes as child nodes under their respective categories. This was done for each of the

four groupings. The final-year students' transcripts were analysed first to aggregate the common ideas from the two FGDs. I then analysed the data from the new graduates in the same manner. Next, I analysed interview data from academic educators and finally, data from clinical educators.

3.10.2 Phase II analysis

I then began comparing and contrasting category content in an attempt to identify patterns of meaning. Categories that shared similar concepts or related aspects of the phenomenon were grouped. For example, I thought that the categories such as 'Adapting communication to difficult situations' and 'Student experiences of engaging in high-level EC activities' could converge around a common theme of 'Adapting communication to contextual demands of professional practice'. This process of thematic synthesis involved constantly moving between the categories and the original data to ensure that the developing themes were reflective of the participants' perceptions and experiences. This process also helped me to understand and develop the emerging concepts from the data (Figure 3.4).

Theme	Description (what it represents)	Empirical indicator (evidence)
Adapting communication to contextual demands of professional practice	This theme refers to how students prepare for the diverse communication challenges they'll face in the clinical workplace, including challenging clinical scenarios, private-public contextual differences, and high-level communication activities.	**Adapting communication to difficult situations** S4: Experience was, I'm not going to lie... we've done presentations like throughout the years, but I think our presentations are something that you could never really fully get used to. So in as much as you prepare, I feel like we were prepared for the presentation, but it's always just nerve wracking. S8: Some of them may not be able to speak. So they use sign language and you just have to work around your different groups of people that you present to, and make sure you try and find a way to involve or be able to actually accommodate for everyone. S6: So at times you I find that you have to be more simplistic rather than trying to be more complex and using what patients cannot understand or decipher at times, you'd rather have to try and use examples of stuff that you can either enhance or maybe you reduce so that they can come to a certain point. S2: And at times, the communication skill there, it can either be a barrier to you or it can be accommodative depending on now the people's moods, people's emotions, you know, because as people we all have problems. I don't think there's anybody in this world who doesn't have a problem. S8: Sometimes it's the way you deal with the situation. However, I feel like sometimes it's also there's a limit. For example, you can't be standing there and someone swearing you all the letters of the alphabet and you'll be like, OK, you know what? You can ignore it because yes, we are people and we also have feelings. But it also comes with the effect of communication. Maybe you're not going to just stand there and scream and sweat at them back. But you know you can simply tell them, you know, I don't appreciate the words that you are using on me. Like, I'm just here to do my job. S3: it has been very nerve wreaking as well and scary. But it also taught me that it's for a good cause because I need to be able to speak up. In for example, the theatre setting, if I don't communicate effectively, I can be putting a patient at risk. So that for me, gave me sort of a little bit of confidence boost in that regard that I need to be able to speak up because it's very, very important

Figure 3.4 Example of development of theme, its description, and its link to a category and evidence.

The analysis resulted in the development of four main themes, each representing a major aspect of how participants perceived and experienced the development of the effective communication GA in the CT programme in preparation for the clinical workplace. The findings from each grouping were juxtaposed in the results and discussion as relationships were observed and culminated in a graphic outlining the key themes to illustrate my interpretations of the findings.

3.11 Rigour (Trustworthiness)

Qualitative research requires unique criteria to assess reliability and validity, as it does not rely on numerical data (Delport, Fouché & Schurink, 2011). Trustworthiness may be defined as the overall word for ensuring validity and dependability in qualitative research (Lincoln & Guba, 1985). The rigour of this study was determined through the trustworthiness framework posited by Lincoln and Guba (Lincoln & Guba, 1985), who proposed four criteria for determining the trustworthiness of a qualitative inquiry: credibility, dependability, confirmability, and transferability. This criterion served as a guiding principle throughout the research to ensure reliability and validity throughout the study and final report.

3.11.1 Credibility

Credibility was achieved through in-depth interviews and FGDs, ensuring rich descriptions of the phenomena and allowing participants to fully express their train of thought by managing the discussions to continue for as long as possible without interruption; this added to the richness of the descriptions. Probing questions were posed to participants by the interviewer to continue for as long as possible with their thoughts uninterrupted, all of which contributed to credibility (Polit & Beck, 2012).

3.11.2 Dependability

A rigorous data trail of all communication, voice recordings, transcriptions, and all decisions made throughout the research process was kept (Polit & Beck, 2012). Dependability was also obtained by analysis of data from similar HE contexts. I ensured that information power was achieved to accommodate new and similar perceptions from the literature review and by other researchers

from the South African context.

3.11.3 Confirmability

Confirmability was ensured by providing rich and thick descriptions of the insights and conclusions, and interpretations were drawn from the data; furthermore, coding in a collaborative team with supervisors will create an investigator triangulation (Polit & Beck, 2012).

3.11.4 Transferability

To maintain transferability, a clear account of the demographic information of the participants and thick descriptions of the quotations from the interviews are included to demonstrate the transferability of our findings to other groups (Polit & Beck, 2012).

3.12 My Positionality

Within an interpretivist paradigm, it is advised that participants and researchers collaborate to create knowledge, with the researcher serving as the instrument for data generation. One may argue that this has the potential to impact credibility. Consequently, the researcher's positionality should be explicated. I am a Clinical Technologist by profession, with a BTech in Clinical Technology (Cardiology), an MMed Sci (Cardiology) and a PhD (clinical medicine) as my base qualifications. During my experience in the public health sector, I practiced as a clinician and was involved with training of student Clinical Technologists, Medical registrars, Cardiology consultants and other health professionals rotating through Cardiology, as part of my regular duties During this time, I developed an interest in how my different students learnt and began my search to understand these, as well as for strategies to optimise the delivery of the content. This, and my love for clinical research, which resulted in a MMedSci qualification from the University of KwaZulu-Natal, inadvertently led me to the formal higher education space, which presented an entirely different context to the clinical environment. The seriousness of my position became very clear when I realised that I was also responsible for advancing the redress that was so needed in the HE space, but to do that, I had to understand how my students learnt, and their experiences

which shaped the quality of their learning, which would impact their transformation into graduates, was the trigger for my own self-reflection.

I was appointed as the curriculum champion to lead the recurriculation of the Clinical Technology qualification in 2012. My position as an educator and my own tensions experienced while mapping out the GAs during the development of the curriculum have significantly influenced my need to understand how these GAs develop within the current structure since I was well aware of what attributes were needed in the clinical environment. The DUT standard[10] was then incorporated into the curriculum design, and all five graduate attributes were linked individually or together in each module from the first to the fourth year.

As an educator who is involved with teaching from the 2nd year to the 4th year and then at the postgraduate level, effective communication, which is one of the 'Big 5' graduate attributes on the DUT standards document, is, in my opinion, necessary for the holistic and professional development of a clinical technologist, as it serves for the development of the other attributes like respect, cultural sensitivity, professionalism, empathy, self-directed learning, and adaptability, which are core to the profession. To demonstrate generic attributes such as critical thinking and empathy, a graduate would need to be able to communicate effectively too.

This realisation spurred me to engage in the development of my own scholarship of teaching and learning in the new curriculum, and my experience has revealed that students struggle to achieve certain outcomes related to effective communication, borne out by poor written and verbal communication skills, digital literacy skills, and health professions communication skills that are not adequately developed for the profession. This finding was compounded by feedback from clinical educators who oversee the clinical practice aspect of the curriculum. I am cognisant of the limitations of implementing and assessing GAs, particularly in various contexts; indeed, the disjuncture in how academic and clinical educators and students understand and perceive these GAs makes planning, implementation, and assessment a challenge. This led to the research questions for this study.

I am mindful of my position as an insider in this domain of research. According to Saidin (2016), being an insider researcher is advantageous in that the insider (myself) would possess an in-

[10] See Appendix 2

depth understanding of the professional terminology, context (institutional and clinical), and inter-relationships of participants, which would allow me to identify nuances that outsiders may miss. In addition, as an insider researcher, I occupy a dual position, both as a member of the academic staff and as a qualitative researcher. This positionality offered certain advantages, such as access to participants, and the ability to build rapport with ease. However, the drawback of being an insider is that the responses of participants and their willingness to share their experiences may be influenced by existing relationships and power dynamics. In addition, due to familiarity, insiders could risk overlooking contextual elements and accepting established practices without critique or maintaining objectivity (Greene, 2014). In order to mitigate these risks, I explicitly communicated to participants that their responses would not affect their academic standing or evaluations. I also used open-ended, non-leading interview techniques, and encouraged participants to share both positive and negative experiences. In order to minimise my subjectivity, I consciously reminded myself to be aware of the manner in which my interpretations influenced the research process and the specific strategies that could ensure quality outcomes. I adopted strategies like reflexive journaling and peer debriefing (described hereunder) to strengthen the credibility and rigour of the study.

3.13 Ethical Considerations

Ethics may be defined as "a set of moral principles which is suggested by an individual or group and is subsequently widely accepted and which offers rules and behavioural expectations about the most correct conduct towards experimental subjects and respondents, employers, sponsors, and other researchers, assistants and students" or, fundamentally, the norms for conduct that distinguish between acceptable and unacceptable behaviour (David, 2015). Ethics involves the following principles:

3.13.1 Beneficence

Beneficence implies that researchers have a responsibility to minimise risk to participants by maximising potential benefits and ensuring that harm is kept to a minimum, thus preventing any injury or discomfort to participants (Polit & Beck, 2012). In my study, participants were not exposed

to any harm, as there were no invasive interventions. Participants were informed that those who were negatively impacted by the line of questioning would be referred to the DUT student counselling centre for further assistance.

3.13.2 Justice

Justice denotes that participants have the right to privacy and fair treatment. As such, participants who choose not to participate or decide to withdraw from the study after initially agreeing should not face any prejudice or be held accountable for their withdrawal (Polit & Beck, 2012). In this study, participants were treated with fairness and were aware of voluntary participation and withdrawal at any time, with no penalties. No participant was prejudiced concerning this.

3.13.3 Respect for human dignity

Polit and Beck (2012) state that human dignity refers to a participant's right to be free from coercion or the threat of penalty if they choose to withdraw from the study. This includes the right to self-determination and full disclosure, ensuring that potential participants can voluntarily decide to partake without the risk of prejudicial treatment (Polit & Beck, 2012). In addition, participants should have the right to refuse to provide information, ask questions and withdraw from the study at any point without penalties (Polit & Beck, 2012). In this study, participation was voluntary, and participants were informed that they could withdraw participation at any time with no consequences.

For this study, I completed an online ethics course to demonstrate my capacity to adhere to the ethical principles of anonymity and confidentiality. The research proposal was prepared and submitted to the Human Research Ethics Committee (HREC) at the University of Cape Town for ethical clearance for the study[11]. Once this was done, reciprocal review and approval were sought

[11] See Appendix 4 for UCT HREC approval

from the Durban University of Technology Institutional Research and Ethics Committee (IREC), as well as gatekeeper permission in order to access DUT staff and students[12].

3.14 Informed Consent Process

After the requisite permissions were obtained, I then approached new graduates, academics, and clinical educators on their official DUT email addresses, where I provided detailed information about the purpose of the research, the process of data collection, confidentiality and anonymity, and data storage. Prospective participants were informed that participation was voluntary and that they may withdraw at any time during the study.

For students, I presented a short information session (15 minutes) that took place during an existing class, and new graduates and educators were invited via their official email to participate. The timing of the FGDs was planned for before the students had completed any assessments that I am responsible for and were conducted by another well-experienced researcher to balance the power dynamics.

Only after participants understood the study, what their participation entailed, and their rights was a consent form subsequently provided to interested participants and obtained by signature (Appendix 7). The low risk of participation and their voluntary participation were explained, and they may withdraw at any time and without any intentional consequences (Appendix 6a).

The need to also maintain confidentiality in their participation and respect others was also highlighted. Participants were cautioned that the line of questioning may arouse emotional and/or psychological discomfort, particularly if their experiences were challenging or unpleasant, as students would be asked to reflect on their experiences. I tried to encourage inclusivity and respect where all participants felt valued and set clear ground rules at the beginning of the FGD to ensure that all participants have an equal opportunity to speak and be heard.

As students and staff within the Faculty of Health Sciences, all potential participants had the capacity to consent to the study. They were assured of anonymity, as their names are not included

[12] See Appendix 5 for DUT gatekeeper approval

in the thesis or publications. This study was conducted in English, as this is the language of preference for all academic activities at DUT.

3.14.1 Risks and Benefits

No vulnerable groups formed part of this research, nor was any physical or emotional harm anticipated. However, given that the students were asked to reflect on their experiences of the development of the effective communication GA, some questions had the potential to arouse emotional and/or psychological discomfort, particularly if their experiences were challenging or unpleasant. For those students who became negatively impacted, I maintained respect, confidentiality, and sensitivity and referred them to the appropriate services, such as the DUT student counselling services[13].

3.15 Reflexivity

In qualitative studies, there is the acknowledgement that the study is highly unlikely to be truly unbiased and that the researcher could have unintentionally influenced the research process (Olmos-Vega et al., 2023). I first declare my bias and fully explain how my subjectivity may influence how I conduct the study and especially the interpretation of the data. To be more aware and mindful of potential biases and encourage the integrity and rigour of this study, I have kept a reflexivity journal with continuously updated notes of the process of this study, which highlight my reactions and self-reflection of working in a field that I am passionate about and have a vested interest in (Appendix 11). Specifically, my notes were around my assumptions about the phenomenon, around how my participants experienced the development of the effective communication GA, with a focus on the high and low points.

In line with the phenomenology design guidelines, I made a concerted effort to put aside my preconceptions, values and beliefs since my experience as a clinician, educator, and curriculum

[13] Bookings could be made at: https://www.dut.ac.za/student_services/|counsbookingdbn@dut.ac.za

‘champion’ leading curriculum design in the programme may have influenced how I asked the questions and made meaning of the data. In addition, conversations with my supervisors about the meaning of my data with my positionality during our check-in meetings served as a form of reflexivity. This was an important practice, as it ensured that the interpretations that I deduced were grounded in the data rather than my own preconceptions. This process also helped me to make deeper sense of my data and clarify unexpected data findings.

3.16 Peer Debriefing

Peer debriefing is a strategy in which the researcher regularly engages with an experienced researcher to discuss the research methodology, data analysis, and interpretations. This process allows the peer to critically challenge the researcher's interpretations and provide alternative perspectives and explanations (Lincoln & Guba, 1985). These authors further argued that research students' supervisors can act as debriefers. In this study, since I considered myself an insider researcher, I was constantly in communication with my supervisor and co-supervisor, who also examined the draft findings and notes. In addition, I presented my initial findings to a departmental research group, which was another form of debriefing (Long, 2003).

3.17 Conflicts of Interest

Neither I, as the researcher, nor my supervisors received any incentives for the recruitment of participants or for any other purpose related to the study or had any proprietary interests involving any device, agent or software being evaluated in the study.

3.18 Challenges experienced during Data Collection

This research was undertaken at the institution where I am employed, and since I shared the identity, language, and experiential base with the study participants, I am an inside researcher

(Asselin, 2003). This position allowed me more complete acceptance by my participants, as they were more open with me, and I believed that the depth of the data gathered was greater. However, I had to also be cognisant of the possible limitations of being an inside researcher; there was a possibility that I could make assumptions of similarities and therefore not fully explain my participants' individual experiences. As pointed out by Dwyer (2009), my personal experience could cloud my perceptions, and as a member of the group, I 'will have difficulty separating it from that of the participants', resulting in an interview skewed towards my experience instead of the participant's, which could impact the analysis. Throughout the data generation process, I remained mindful of my involvement and how this might have influenced the study.

It was at times challenging to manage the data collection process because of clashes in workplace shift schedules between the participants and me. Since this project involved data collection from four groups of participants, these tensions had to be negotiated, and data collection became more protracted than anticipated. For example, 4th-year students initially seemed reluctant to participate until individual invitations were sent and the importance of their inputs was highlighted. They were then very happy to volunteer, and two healthy focus groups were realised. Although I was not particularly comfortable with this recruitment strategy, since some participants only agreed when I sent them a personal invitation, given the nature of purposive sampling, these participants were necessary for the generation of information for this study, which was why I proceeded with the recruitment.

With clinical supervisors, work duties disrupted the flow of the interview and observation process, and in one instance, the observation had to be postponed to another day. This impacted the rapport already built between me and the participant. Also, emergencies or short-staffing led to clinical supervisors changing their schedules—I had to do many follow-ups and rescheduling due to the demanding nature of the public/private hospital environment. In one instance, the participant was interrupted by an emergency in the ICU but insisted on resuming the interview directly thereafter. Although I was deeply appreciative of this gesture, I felt that it certainly influenced the direction that the interview took.

Some participants wanted the conversation to take on a certain angle, and steering them away to the main points was, at times, challenging, as they always veered back.

3.19 Methodological Strengths and Limitations of the Study

The use of FGDs facilitates the generation of multiple perspectives on a phenomenon and allows exploration by encouraging discussion and debate among participants (Brits, 2017). The use of FGDs for the student and new graduate participants was most appropriate, as I felt that group discussions, in addition to balancing the power dynamics, could encourage a more expansive conversation, with one participant acting as a trigger for the next.

However, several limitations have been reported for FGD, of which the potential for member pressure from the group is the first. This could lead to others conforming to a specific way of thinking and inevitably impact the quality of the discourse. The degree to which this is permitted depends on the ability of the facilitator to recognise the dominant voices and sub-groups within the focus group (Onwuegbuzie et al., 2010). This was minimised with the use of a facilitator who was well-experienced in conducting FGDs amongst students and who was very aware of these potential limitations. Another limitation is the lack of trust between the facilitator and participants. In this study, this was mitigated through the students being familiar with the facilitator for the FGD, as they had interacted with her on a previous occasion.

In terms of the interviews, particularly semi-structured interviews, as was the case in my study, it is known that this approach renders greater flexibility and freedom for both interviewer and interviewee, allowing the interviewer to achieve greater depth by probing and expanding the interviewee's responses (Roulston & Choi, 2018). However, I am cognisant of the limitations of interviews. The interviewer effect, in which participants adjust their responses based upon the personal identity of the researcher, has been documented (Denscombe, 2017). I observed this on an occasion, as I am known to the academic and clinical educators. Another criticism highlights the contextual nature of words and responses, suggesting that perceptions of the interviewees are shaped by their individual culture (De Vos et al., 2011) and environment. Although this was evident in this study, it served to shed light on a lack of a common conceptualisation of certain key concepts explored in this study.

3.20 Conclusion to Chapter Three

This chapter explained the research methodology. The interpretivist paradigm and qualitative research approach were discussed as to how they were used in the study. The research population and sample, consisting of four groups of participants, were discussed. The data collection tools, which consisted of four separate interview schedules for each sample group, were explained, along with the data-gathering procedure. The procedures for data collection and analysis were also covered. The chapter concluded with a discussion of the ethical considerations, reflexivity, and challenges with data collection. The following chapter presents the results from the data analysis, as they emerged from the methodology outlined in this chapter.

CHAPTER FOUR
RESULTS

4.1 Introduction

Chapter Three presented a description of the research design, data collection process, implementation thereof, and the data analysis. The process that I undertook for eventually developing the themes and categories used in the final analysis is described in the Methods chapter. In chapter four, the current chapter, I present the research findings. The study aimed to understand the experiences of students, new graduates, and academic and clinical educators in the Clinical Technology (CT) programme at the Durban University of Technology, specifically regarding the development of effective communication as a graduate attribute (GA) to prepare for the workplace, and through this lens the interviews and discussions were viewed. Although each discussion and interview unearthed unique and rich contextual [12] descriptions of their experiences and perceptions, through thematic analysis, several broad themes were developed from similar nuances during the analysis.

4.2 Orientation to the Chapter

In the process of repackaging (*see Chapter Three, 3.10.2*), common codes were categorised together, and I ultimately developed a set of four overarching themes, namely, Adapting communication to contextual demands of professional practice, Effective communication: a continuous journey, Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace, Structural factors that influence EC development (Appendix 10). After carefully considering both the logical progression and theoretical underpinning when sequencing the themes, I organised the themes to follow a developmental trajectory, being cognisant that competency development in the clinical environment is not linear but rather an ongoing course of learning and adaptation. In this environment, students gradually move from peripheral to full participation in professional communities, so I chose to begin with ‘Effective Communication Development: A Continuous Journey' (T1) as the foundational theme. I ranked ‘Structural elements that influence Effective Communication Development' (T2) second to reflect my understanding that individual development is deeply embedded within the wider institutional and

systemic frameworks, as indicated by Engeström (2001) in the AT framework. I surmised that this sequential position would facilitate an understanding of how organisational structures and stakeholder dynamics shape the environment or context in which communication competencies develop.[14]

I placed the theme 'Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace' (T3) in the third position, as it builds from the established organisational context. This theme also acknowledges that cultural and linguistic competence development is deeply embedded in social and professional contexts (Bachmann, Pettit & Rosenbaum, 2022) and explores the relationship between individual development and sociocultural factors particularly relevant in the SA healthcare context. The theme 'Adapting communication to contextual demands of professional practice' (T4) was placed in fourth position, as I understood it to represent the synthesis and practical application of developed competencies and align with Kolb's experiential learning theory (Kolb, Boyatzis & Mainemelis, 2014), which outlines the convergence of theoretical understanding and practical experience in the clinical workplace.

I concluded the thematic analysis with recommendations from each of the four groupings, focusing on the commonalities as well as the differences. I structured the presentation of the findings in a manner that allowed for a more nuanced understanding of how each grouping perceived and experienced the development of the effective communication GA; therefore, perspectives from educators are presented separately from those of students and new graduates for each theme and sub-theme (where appropriate).

4.3 Findings from Interviews and Focus Group Discussions

The results from the interviews and FGDs are presented in this chapter through themes and sub-themes from the responses to the research question. The four groupings of participants were asked about their perceptions and experiences of the development of effective communication GA in preparation for the workplace. I analysed the data from final-year students and new graduates first, followed by academic, then clinical educators. After iterative and deductive

[14] For the purposes of this chapter and those to follow, 'context' refers to an institution, clinical workplace, type of healthcare facility (private or public) or geographical location.

thematic analysis (*see section 3.10.1 Phase I analysis in the Methods chapter)*, which began with manual coding, I developed broad categories. Then, common categories from each grouping were combined to formulate the overarching themes, after which I constructed a matrix of the themes and sub-themes, which is shown in Table 4.1.

Table 4.1 Nascent themes from categories and codes in response to the research questions

Codes (examples)	Categories and descriptors	Themes and descriptors	Category sources
Student support Theory and practice integration Mentorship Role of teamwork in resource-constrained environments	Role of the multidisciplinary team in shaping the development of EC	T1: Effective communication development: a continuous journey refers to the different phases of developing communication and their influences throughout the student's undergraduate journey.	A1 S1, S3, S7 C2, C3 G1, G2
Communication skill development Student readiness Social constructs Development of EC in clinical workplace Feedback to students regarding EC	Developing EC for workplace readiness		A1, A2, A3 C1, C3, C5, C6

Organisational support Organisational culture Conceptualisation of GA Collaboration Communication between HEI and industry Influence of learning environment on communication development Standardisation of expectations Training culture of clinical working environment in developing EC: private vs public	Stakeholder conceptualisation and alignment to develop EC GA.	T2: Structural elements that influence Effective Communication development: the factors across the HEI and clinical space that influence the development of EC	A1, A2, A3, A4 C5, C6 S3, S8 G3, G4
Enablers for developing EC in the clinical workplace Real-world practice in EC Barriers to EC in the clinical workplace Adapting to multilingual clinical contexts Non-verbal communication	Adapting communication for linguistic competence in the workplace	T3: Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace	A4 C5 G2, G4 S1, S3, S7, S8

Cultural diversity Navigating cultural diversity in the clinical workplace	Cultural and social aspects in developing EC		A1, A2 C1, C3 S2, S4
Role Modelling Discomfort with public feedback Behavioural insights Student conduct Clinical staff support in developing EC	Attitudes and behaviours of educators		A2 C2, C3 S3, S7
Adaptability Managing multiple curricula Student workload Complex communication difficulties Handling sensitive issues Transformation in the development of EC Adapting communication to difficult situations	Contextual catalysts in EC development: explores the various contextual factors and their impact on the development of EC.	T4: Adapting communication to contextual demands of professional practice refers to how students prepare for the diverse communication challenges they will face in the clinical workplace, including challenging clinical scenarios, private-public contextual differences, and high-level communication activities.	, A1, A2, A3, A4 G3, G4

Key: A = academic educator; = clinical educator; S = final year student; G = new graduate; EC = effective communication; = graduate attribute

In the section to follow, I will present a description of each theme, followed by pertinent citations from the data sources, together with an explanation of their significance to the various themes and categories.

4.3.1 Theme 1 (T1): Effective communication development: a continuous journey

This theme refers to the different phases of developing communication and describes participants' experiences of effective communication development, as well as their influences throughout the student's undergraduate journey. Two sub-themes were identified and are named 'The role of the multidisciplinary team in shaping the development of EC' and 'Developing EC for workplace readiness'.

The nature of communication development is a dynamic one, and CT students should enhance and refine their communication capabilities as they move from the classroom to the clinical workplace. Communication skills are essential for professional competency in CT to render quality and patient-centred care. In the CT profession, effective communication is multi-faceted and incorporates verbal and written skills, as well as skills like professional dialogue, empathy, interdisciplinary collaboration, and cultural sensitivity, to name a few.

Effective communication development: a continuous journey (T1): Academic and clinical educators

Some of these communication skills are developed in the preclinical years at university under the purview of academic educators, who appreciate that the communication skills needed for the CT profession have evolved beyond didactic learning. This recognition was expressed by academic educators, which prompted them to incorporate various activities into their modules to develop both technical proficiency and interpersonal competencies. A commonly described activity by academic educators was the proficiency assessment, which, in the CT context, would be used to assess the degree to which students could perform predetermined clinical procedures or tests safely and accurately; this was implemented from the first year until the fourth year.

Another academic spoke about how written and verbal communication skills were developed through the research modules, where students worked in groups and were guided by rubrics *(A4)*.

In addition to collaborative problem-solving, the research project was a major activity that aimed to bridge the academic and professional domains while students were in the clinical workplace.

Clinical educators also spoke about how effective communication was developed in the clinical workplace. These ranged from instruction in interpersonal communication to the acquisition of technical skills needed to communicate diagnostic outcomes.

> *C4: We do teach them how they should present themselves when it comes to other colleagues, maybe other students or with the cardiologists, physicians, the nurses, all the healthcare professionals.. We teach them how they should communicate with the patient and also with their colleagues as well.*

Another clinical educator *(C5*) described how structured workshops were offered to CT students for standardised skill development and integration of theory with practice. Given the critical role of the clinical workplace in developing communication skills for professional practice, it is clear that clinical educators, through structured learning experiences, can transform abstract theory into practical competence.

Effective communication development: a continuous journey (T1): Students and graduates

Students also reflected on how effective communication was developed and highlighted various ways, like written assignments, research projects, and oral presentations; these experiences served to build confidence in the clinical workplace on research matters.

Communication development was also augmented in the clinical workplace, which itself is meant to provide a transformative space where students can integrate theoretical knowledge with practical application. Participants reflected on how the transition from the classroom to the clinical workplace contributed to the development of communication abilities:

> *S2: We come across people with various backgrounds, various problems, diseases or even from higher rankings, and I feel that really helped us, me personally… really helped me and shaped my communication skills.*

Graduates reflected on their experiences in the clinical workplace, which led to them developing communication strategies in response to the contextual demands, for example, communication with and involving family members in a patient's treatment when language barriers existed. When engaging in high-level communication activities, graduates also expressed a sense of pride and fulfilment upon completing and presenting the research project. For one graduate *(G3)*, the culmination of the research project represented his journey and success at the end of his degree. Another graduate reflected on how her communication skills developed through the course of her clinical years and how pivotal moments challenged her intellectual capabilities and resilience while engaging in high-level academic activities.

> *G1: I'll take it back to the 4th year thesis presentation. So, from my personal experience, I had to do it in front of a panel of gynaecologists and clinicians at Groote Schuur Hospital, where I was placed for my training. It was very daunting being a very young individual to present in front of a room full of established doctors, nurses and other medical staff.*

Experiences like these serve to propel a student to an emerging professional, particularly when that activity demanded a level of cognitive precision, professional composure, and an ability to communicate complex scientific ideas to an experienced, critical audience, all of which encapsulate effective communication.

A good clinical training site will enhance the development of comprehensive and innovative communication skills and real-world problem-solving competencies. However, in a healthcare setting, and for the CT profession in particular, for these skills to develop, a collaborative learning environment is needed, where qualified staff of a multidisciplinary team actively contribute to the professional development of students.

4.3.1.1 Sub-Theme (ST) 1: Role of a multidisciplinary team in shaping the development of effective communication

This sub-theme refers to the interactions between students and clinical staff that influence in some way the students' experiences of developing effective communication. Communication is a collaborative skill, and interdisciplinary influences through a multidisciplinary team enrich understanding and development of these in student clinical technologists.

ST1: Role of a multidisciplinary team in shaping the development of effective communication: Students and graduates

Most students perceived the role of mentorship and supportive interprofessional dynamics in developing communication skills among student clinical technologists as an important one. This included a collaborative learning environment where qualified staff actively contributed to the professional development of these students. A positive experience is highlighted below:

> *S3: My qualifieds [qualified technologists] especially have taught me a lot. They've also encouraged me to speak up so they have helped with my communication skills a lot. They take their time to explain certain things. And they also understand that we are students and learning. Mentoring from senior staff has helped.*

There are several roles that a multidisciplinary team has in developing this attribute in student clinical technologists. Firstly, a multidisciplinary team would provide the student with exposure to various professional perspectives and break down professional silos. Furthermore, an effective multidisciplinary team, through interdisciplinary collaboration, could demonstrate a holistic perspective of healthcare delivery. These sentiments were supported by the new graduates, who reflected on how their professional communication developed through experiences where exposure to and guidance from other members of a multidisciplinary team.

> *G1: It was also exposure to doctors from around the country...I've even worked with doctors from the USA from a whole lot of countries and they give you their input on what is actually happening in their country, the patients that they see, the surgeries that they undertake.*

> *G2: I mean, they were so understanding and they were so happy to help us to understand because, I think both me and my partner, we were lost.*

Here students perceived the role of a multidisciplinary team to be a supportive one where the students, in their moments of vulnerability, were afforded empathy and understanding. However, this was not the experience of all students: several participants described unpleasant or even absent interpersonal relationships with the other healthcare team members.

S8*: Sometimes you do get frustrated with the environment that you're working in. For example, with me, I feel like I'm in an extremely toxic environment. And you have your fair share of people screaming at you and insulting you and embarrassing you in front of others.*

The repercussions of training in a toxic workplace extend well beyond the initial emotional unease and could possibly jeopardise the overall professional growth and welfare of student clinical technologists. This quote implies that there may have been issues with the workplace culture, where students were left vulnerable and professional respect was lacking. Such environments are linked to a plethora of adverse consequences, including predisposing students to developing mental health issues and even chronic diseases related to stress. A new graduate also expressed regret when recounting their experience of not being able to adequately interact with every member of the multidisciplinary team:

G4: I think in terms of the communication side itself, as a student we didn't really get much freedom to basically communicate with the doctors themselves or anything of that sort, because it does get a bit complicated there in terms of the hospital and their staffing. So sometimes we were very short-staffed, or there wasn't even a doctor around. I really did not get that chance to be involved in that multidisciplinary team.

When students did not receive appropriate exposure to a multidisciplinary team, they perceived themselves to be deprived of such opportunities for communication skill-building, particularly related to professional communication norms. Furthermore, this type of environment alluded to above would hinder students from developing the desired professional identity and being seen as an integral member of the healthcare team.

ST1: Role of a multidisciplinary team in shaping the development of effective communication: Clinical educators

In fact, the role and impact of the multidisciplinary team were strongly highlighted by several clinical educators, who emphasised that multidisciplinary teams inculcated mutual respect and understanding across professional roles and that a collaborative clinical learning environment was crucial to the holistic development of the student CT. As described by one clinical educator:

C2: The value of multidisciplinary teams is very important. They play a very integral role. Because of the kind of environment we work in, you cannot work on your own in the theatre. We work in a multidisciplinary environment, so, you know, communicating with the other teams could be a radiographer, anaesthetist, or surgeons. And understanding it gives you an understanding of what needs to be achieved.

Thus, the role of a multidisciplinary team, as perceived by clinical educators, went beyond just developing professional skills; it extended to developing the attributes required for independent practice, in this case, effective communication.

4.3.1.2 Sub-Theme (ST) 2: Developing effective communication for workplace readiness

This sub-theme represents the internal and external factors that impact student workplace readiness. In the ever-evolving healthcare landscape, effective communication is regarded as an essential attribute for professional competency and workplace performance. As mentioned above, CT students need to develop communication skills that incorporate technical acumen, interpersonal skills and professional adaptability to prepare for the extraordinary challenges that beset SA's public healthcare system. This would also include preparation for realistic expectations of the clinical workplace environment. Through the discussions, academic and clinical educators kept referring to students' attitudes towards their development of effective communication, and this was deemed to be an important determinant of student transition into and success in the clinical workplace.

ST 2: Developing effective communication for workplace readiness: Academic and clinical educators

The correct attitude from students reflects their professionalism and commitment to learning in the clinical workplace and is important because it directly influences their interactions with patients, colleagues, and clinical educators. Unfortunately, academic and clinical educators bemoaned the lack of student participation and interest in the classroom and clinical workplace, which ultimately had dire consequences for their development of these skills. As one academic recalled their experience of student interaction in the classroom:

A2: It's really a challenging one because the calibre of students we are getting…not all of them, but most of them do want to be just spoon-fed. And they think that lecturers are in front of them and are there to pour knowledge into their brain.

This attitude, when taken into the clinical workplace, resulted in students not developing fundamental skills like patient history taking, which impacted negatively on clinical assessments, as described by a clinical educator:

C6: Case in point where they just don't ask the questions... especially the patient history questions and then you end up with, OK, I have the tests, but I don't have the context…which invalidates the tests.

These behaviours may have significant repercussions in the clinical training environment, like reduced or delayed development of clinical competencies, as students may lack the initiative, interest, or accountability necessary to develop them. In addition, an indifferent attitude can impede collaborative efforts and diminish trust with patients, therefore negatively impacting their development of effective communication. Both academic and clinical educators also expressed frustration at the perceived gap in students' written communication skills, which impacted workplace readiness.

A1: They have to learn from it, so it's a tough one because it can be frustrating, especially when you don't understand what they're trying to write to you in an email and you know the back and forth, and then you just decide, I'm going to do a team's call because it'd be easier for me just to speak to them rather than this back and forth emails.

The clinical educators pointed out the inability of some students to present verbally, as well as inadequate subject knowledge. This can hinder progress in the clinical workplace, as additional time needs to be dedicated to getting the student up to the requisite level of written or verbal communication, at the expense of acquiring clinical acumen and skills.

C3: They can't present a topic properly. You know the basics, that foundational knowledge is not there.

The lack of use of appropriate discipline-specific language was also highlighted by a clinical educator, which actually resulted in the students repeating their clinical assessment.

Another factor that impacted workplace readiness, which was raised by all stakeholders, was that of feedback: how it was given and how it was received. Academic educators experienced this as students being reluctant to receive feedback and that some students vehemently refused feedback. The explanation given was as follows:

> *A2: I've got a problem with how I react. If I fail, I may end up even crying in the class, so I'd rather not get it in front of everybody.*

The danger in students resisting feedback is that when they enter the clinical workplace, they will miss opportunities for growth, which occurs through feedback, leaving them unprepared to handle any challenging or complex clinical demands independently. This affects the development of the effective communication GA directly because students may struggle to articulate areas where they genuinely require feedback or support to grow professionally. In doing so, students risk being assessed as incompetent for independent practice. However, not all students resisted feedback, and depending on the approach used, students did come around and realise the benefits of constructive feedback. One clinical educator spoke about the impact of constructive feedback on students' development:

> *C1: In the beginning of the training, they tend to sulk more if you give them negative feedback, they tend to withdraw to their corner and they talk less. Because they think it's the end of the world because they've been told what's what they've done. But as the training progresses they tend to develop the trust issue that I can be told that I've done ABC but it does not necessarily mean that I'm a bad practitioner in training.*

Constructive feedback also exemplifies effective communication since guidance is provided with empathy and respect; consequently, students would be encouraged to ask questions and practise communication without fear of judgement. This approach is unlike negative feedback, which may focus exclusively on faults or mistakes without offering solutions. What is interesting is that the type of feedback given to students may be reflective of the broader organisational culture: feedback is likely to be constructive in a growth-orientated organisation, whereas non-constructive feedback is more reflective of a culture that is hierarchical or punitive. There are other organisational factors that influence the development of effective communication GA, and these will be explored in the next theme.

4.3.2 Theme 2 (T2): Structural factors which influence effective communication development

Although structural factors did not emerge as the dominant theme, it is established that the complex interaction between institutional structures, organisational culture, and stakeholder relationships plays a critical role in shaping communication development. This theme captures how participants perceived the institutional environment, encompassing both the HEI (DUT) and clinical training facilities in both private and public training hospitals within which effective communication skills are developed and practiced. At DUT, as outlined in the DUT standards documents (Appendix 2), effective communication represents an essential attribute that extends far beyond just information exchange, as there is an inherent expectation that the graduate would be able to "*Demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences.*" While participant narratives and reflections strongly suggested that structural factors played a key role in either facilitating or constraining the development of these requisite communication competencies, a sub-theme named 'Stakeholder conceptualisation and alignment to develop the effective communication GA' further examined this theme.

Structural factors which influence effective communication development (T2): Academic and clinical educators

To begin with, in terms of organisational support for the development of the effective communication GA, academic educators strongly believed that it existed only on paper. For example, one academic spoke about how the effective communication GA development was driven by academic staff at the programme level and suggested that a gap existed at the institutional level where this was not prioritised.

> *A1: You know we're very driven by it from a Clinical Technology perspective but in the institution as a whole, it's not really given the due respect I think that it needs.*

This could be possibly reflective of different departments having varying perspectives on the importance of developing critical professional competencies like effective communication. Another academic's experience was of frustration at the disparity between official communication from the institution and the actual support provided to staff. The participants' sentiment highlights

a common gap in organisational dynamics, where policies may be well communicated yet fail to address the requirements of individuals tasked with their implementation. The participant goes on to say:

> *A2: That deadline that we are chasing…there's so many deadlines that we have to chase…the support is not there so the staff are also feeling it. Because of my workload, I'm unable to attend such.*

This quote also emphasises the participant's experience of the existence of opportunities, which did not equate to accessibility; in this case the academic educator ascribed this to a lack of institutional support with time and resource allowances. The danger here is that when staff feel like their ability to take up opportunities is hindered by a lack of institutional support, they may become disengaged and demotivated from participating in such professional development activities, which inevitably impacts the quality of outcomes to be achieved.

However, another participant *(A4)* experienced institutional support differently and reflected that the institution did provide guidance using the Envision 2030 strategic plan. However, while this plan prioritised communication as a strategic objective, it did not explicitly outline how effective communication should be developed.

These varying perspectives could be indicative of the subjective nature of how academics perceived and understood effective communication and its development and could contribute to divergent conceptualisations of this GA. This, in turn, could result in inconsistent student communication learning experiences, assessment practices, and subsequent communication skill development. From the clinical educator's perspective, it was clear that effective communication was viewed as a multi-layered attribute necessary for clinical practice.

> *C5: I think the most important graduate attribute is interpersonal relationship abilities, of which the first starts with various methods of communication, both expressive as well as receptive, as well as processing. Then you do have the personal attributes where it comes to troubleshooting and introspection, which it's secondary to receptive communication.*

This perception showed how effective communication was viewed as a foundational GA for student clinical technologists; it was not just about technical abilities but also about encompassing interpersonal and self-reflective practices too.

The organisational landscape, characterised by the dynamic relationship between the HEI and clinical training sites, plays a critical role in developing the requisite competencies in student clinical technologists, but it also presents its own challenges for communication development. The quality of this relationship may be shaped by the quality of the dialogue between HEI and the clinical training site, which may enhance or curtail effective communication development. This was highlighted by one clinical educator who reflected on the need for continuous communication between the academic and clinical spaces so that expectations and demands were understood and agreed upon.

> *C6: I think there has to be a little bit of dialogue between the training units and university regarding what they require from a student, what their superiors and what their clinicians demand of them. And how do we and how do our students then fit in?*

Structural factors that influence effective communication development (T2): Students and graduates

Students mentioned that a clear understanding of the roles and expectations of each stakeholder, namely, the HEI, clinical training supervisors, and students, would facilitate an understanding of student capabilities and preparedness as well as professional competency standards before entering the clinical workplace requirements. This was clearly articulated by the final-year students, who suggested a misalignment from poor communication between the stakeholders impacted on the preparation of students to enter the clinical workplace.

This notion of preparedness was once again raised by the graduates, who suggested that students could be offered more exposure to the specifics of different specialities in CT so that they could make better choices about their future specialisation. As one graduate reflected on their experiences:

> *G3: I feel like at the first level second level, I think there's just lot of it that needs to be done in preparing students to understand what's happening in in each and every unit, even if it means continuously inviting people from units to just put it into students minds that "OK, guys, if you choose this, what's going to be happening… if you choose Cardiology? What's going to be happening…until they have an understanding.*

This implies that when students understand the communication demands and challenges inherent in each of the seven specialities, they would be more adept at navigating these challenges and would be more likely to achieve their communication outcomes.

Effective communication as a foundational GA is developed through several key influences. These include the degree of alignment between HEI and clinical workplace, as well as the quality of collaboration for students to achieve the communication outcomes, while also aligning with the educational objectives by the end of the degree; how stakeholders conceptualise the attribute is an important factor in achieving the outcome of meeting the challenges of clinical practice.

Sub-Theme 2.1: Stakeholder conceptualisation and alignment to develop the effective communication GA.

The interaction between the HEI and clinical environments is a crucial one, as it provides a platform for the integration of theory with practical skill development. It can be argued that a strong alignment between HEI and the clinical workplace would provide students with a coherent approach to communication development. Academic educators had divergent experiences and views on this alignment.

Sub-Theme 2.1 Stakeholder conceptualisation and alignment to develop the effective communication GA: Academic and clinical educators

While one academic experienced cooperation and felt an alignment with clinical trainers regarding how the effective communication GA was developed, another academic staff member expressed concern at the flouting of contractual agreements through clinical supervisor pugnaciousness, which ultimately impacted student development and training.

> *A2:..there are things in the student contracts and then the unit supervisor will say no, you are in my unit…you'll have to go according to what I say in the unit.*

However, there was an acceptance amongst academic educators that a common agreement and understanding between HEI and clinical training sites would refine the development of effective communication GA in students. Clinical educators reiterated that there were specific

communication abilities that were expected of students when they entered the clinical workplace.

C6: But a student needs to be able to explain a procedure to a patient very simply. The writing is how do you write a report for both for the chart or the folder or for your clinician because they need to know what is happening and what you've done.

Clinical educators acknowledged that even in the face of a busy clinical training unit, as is the case in many training units where DUT students are placed, students are expected to demonstrate a high level of performance while also managing the demands of academic and practical learning. This context makes effective communication even more important, as clarity and efficiency can significantly influence patient care and team dynamics. If HEIs and clinical units have differing expectations for achieving communication competencies, students may be at risk of under-preparedness for the clinical environment, along with feelings of stress and anxiety stemming from perceived inadequacy and challenges leading into independent practice. Thus, an alignment between stakeholders is essential to supporting students.

The distinction between private and public healthcare facilities introduced additional complexity to this organisational framework, with each environment offering their own communication challenges and learning possibilities. These challenges were raised by most participants, with the focus on the disparity in terms of the contexts. The shifts in the ’bars’ or expectations from both private and public training sites, which may not always be overt, place additional requirements on the HEI to prepare CT students for each of these contexts. As one academic educator reflected on their experience:

> *A4: So our communication and our interactions with industry is an absolute prerequisite. There are differences within the private institutions as well as public sectors… but you find the bars changing.*

The public sector, particularly in the South African context, which is characterised by various resource constraints, may require students to develop adaptability and resilience, whereas the private sector may set certain performance and service standards in line with entrepreneurship models, as was evidenced in student responses. These contexts have direct implications for communication development in CT students: for example, students would probably interact with a more diverse population in a public hospital setting, which necessitates the development of multicultural competencies, whereas in private units, the exposure to multidisciplinary teams may

encourage a more formal communication type, with patient satisfaction more likely being a priority.

Sub-Theme 2.1 Stakeholder conceptualisation and alignment to develop the effective communication GA: Students and new graduates

At DUT, student clinical technologists may be placed in both public and private training institutions. The final-year students and new graduates were particularly vociferous on this aspect, with participants recounting the stark difference in the communication dynamics that exist between private and public healthcare settings from their experiences. In this instance, participants voiced concerns regarding the impact of organisational factors, particularly in the public healthcare setting, on the quality of communication and patient care. As one student articulated:

> *S3: **...**with regards to public and private discrepancies, like differences between the two…Fortunately, I have been able to see both sides of it because the hospital that I'm at does have a private division, and what I noticed with that is that the doctors or the staff members in the private hospital…they have a certain way of communication as compared to the public division. So what I've noticed is that in private they may be more…this might not sound right but, they might be more polite in a way.*

The nuanced differences in the interpersonal aspects of communication may reflect the distinctions in organisational culture and the patient population served in private and public healthcare establishments. In addition, these experiences highlight the divergent communication expectations and experiences for healthcare practitioners. As this student continued to reflect:

> *S3: Unfortunately, in the public sector, this is what I have been noticing…that patient care is being affected. I don't know particularly if it is due to the high volume of patients that we might have, but I've also noticed in wards that may not be as busy, that staff are not always the best when it comes to having patience…like having just basic politeness. Or kindness or showing kindness towards not only patients but the other staff members as well.*

This reflection is the challenging contextual reality of many public healthcare institutions in SA, which is resource constrained. It further shows how ineffective communication practices may compromise patient care. Other difficulties were brought up, highlighting the challenges

participants had in performing their daily duties in private practice due to the nature of the private context. For example, a graduate expressed their discomfort and sadness when communicating around matters of finance with patients before treatment:

> *G4: We deal with a lot of cash patients and something that really hurts me a lot in this time is when you have to ask the family members to make a payment for the dialysis session before we can even start the session. Basically, you're telling them like if you can't pay, then your family member can't get treatment.*

While the differences in organisational culture between private and public hospitals are clear, what is also clear is that cultural and linguistic competence development is deeply embedded in social and professional contexts. The following theme will explore the perceptions and experiences of the four groups of participants in terms of how cultural, language, and interpersonal dynamics with colleagues and patients shaped the development of effective communication in the clinical workplace.

4.3.3 Theme 3 (T3): Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace

The evidence from participants' responses regarding their perceptions and experiences of the effective communication GA thus far suggests that student clinical technologists must be capable of interacting with diverse patient populations as well as multidisciplinary teams in various clinical contexts; these factors make for a complex learning environment. This complexity may present challenges to students but also forms an essential part of their training to become independent practitioners. This theme explores how participants perceive these dynamics and how their experiences impact the development of the effective communication GA.

4.3.3.1 Sub-Theme (ST) 3.1. Adapting communication for linguistic competence in the workplace

To meet the contextual requirements for SA's diverse linguistic environment, which includes patients and other healthcare practitioners, student clinical technologists must develop linguistic

competencies to communicate effectively across multiple language backgrounds. In CT, linguistic competence is necessary not just for reducing language gaps but also to develop trust, clarity, and cultural respect, which is the hallmark of patient-centred communication.

Sub-Theme 3.1. Adapting communication for linguistic competence in the workplace: Students and graduates

Graduates expressed their challenges when patients were unable to understand any of the languages spoken by the graduate. This would occur if an isiZulu-speaking student was placed in a training unit in Gauteng.

> *G2: The old grannies and grandfathers…they just don't understand isiZulu or English…*

Here the participant assumed that patients would understand any of the widely used languages. So this quote highlights a possible generational language gap. Another participant highlighted further challenges when she was unable to understand the patient and vice versa, representing a severe barrier to effective communication. In this case, the participant's limited knowledge of the patient's language made it impossible to communicate important information and certainly negatively impacted healthcare quality. Other challenges are highlighted in a student's reflection below. Here, although the participant had rudimentary knowledge of the patient's language, she also expressed limitations when conversational proficiency was required.

> *S3: So I am doing my clinical practice in the Western Cape and what I have noticed is that a lot of the patients here mainly do speak Afrikaans and as someone who was able, well who had background knowledge on the language from my school days, I was able to understand them. However, it was very difficult for me to get used to conversing with them in their native language because my vocabulary was not really good enough….*

The value of native language proficiency was further emphasised by another student *(S1)*, who recognised that language barriers could lead to misunderstandings, which could impact patients' decision-making when it came to their treatment.

These challenges highlighted that students were able to recognise their own limitations when it came to language, as well as the potential impact on effective patient care. Despite these challenges, participants found innovative ways to communicate with their patients. For example,

students used gestures when patients were unable to speak at all, as well as pictures to communicate their messages, and also asked for assistance from colleagues who shared the patient's language.

> *S8: Some of them may not be able to speak. So they use sign language and you just have to work around your different groups of people that you present to, and make sure you try and find a way to involve or be able to actually accommodate for everyone.*

Graduates reflected on their strategies and took these adaptations to another level by using interpreters, translation tools, and learning the requisite phrases in the vernacular to enable basic communication:

> *G2: I think we were forced to learn those. Like, if you want the patient to lie in a certain way, so we ask the sisters to teach us just those simple terms so that we can know how to communicate with them.*

These quotes highlight how the demands of the clinical environment drove linguistic adaptation and further spotlights the role of informal learning and peer support.

Sub-Theme 3.1. Adapting communication for linguistic competence in the workplace: Academic and clinical educators

While academic educators felt that preparation for the multilingual context was adequate, clinical educators felt that students were not always receptive to verbal and non-verbal cues from patients and peers. As a clinical educator reflected on their experience:

> *C5: Receptive communication both from patients' body language and then from critical correction from even student colleagues…they are not always able to do this.*

This raised concern since receptive communication is an essential skill for handling complex patient interactions, especially in linguistically diverse environments as we have in SA. Language is inextricably entwined with cultural identity, particularly in SA, where the eleven official languages are each linked with their own cultural identity and heritage. Therefore, it must be recognised that different languages may carry culturally specific communication styles. The next

category explores experiences and perceptions of how cultural and social aspects, including socio-economic factors, impacted the development of the effective communication GA.

4.3.3.2 Sub-Theme 3.2: Cultural and social aspects in developing effective communication

Cultural norms are the shared expectations and rules that guide communication and social behaviour. These incorporate values, social etiquette, dress and appearance, social roles, and communication styles, to name a few.

Sub-Theme 3.2. Cultural and social aspects in developing effective communication: Academic and clinical educators

Academic educators encouraged the development of culturally appropriate communication in various ways.

> *A1: I give them a real-life situation and especially when it comes to the cultural awareness because in the unit they're dealing with patients from all walks of life, not only all walks of life but in all different socio-economic levels as well. So, they have to be sensitised to these types of things as well.*

Academic educators used practical and experiential strategies to develop cultural awareness and communication skills among students through the use of case studies, which would allow students to practise handling cultural differences in a controlled environment. Another academic spoke about how peer teaching encouraged students to learn about each other's backgrounds and encouraged tolerance. The fact that students were celebrating each other's religious activities indicates a degree of awareness and empathy *(A2)*. This participant also highlighted the realistic challenges in promoting unity within a diverse group, inferring that genuine affection may not always be achievable, but tolerance can serve as the initial step toward respect and understanding.

Although academic educators seemed fairly satisfied about the development of cultural sensitivity and communication through the various classroom activities, perspectives from clinical educators were different. In clinical units with multicultural teams and patients, and where diversity was

respected, students were instructed on the cultural nuances of each. As reflected by one clinical educator:

> *C3: We do have the multicultural diverse people coming to the unit and we train them (students) accordingly on what is their expectations.*

This tailored approach to developing cultural sensitivity, including practices, beliefs, and communication styles, can certainly enhance interpersonal interactions with colleagues and patients from diverse backgrounds. However, there was an instance where cultural sensitivity proved to hinder the development of effective communication, as expressed by another clinical educator.

> *C1: Like how we were raised as Black people, right, we can't talk back to the elders. We can't show a level of authority to elders. Then when you go to a working environment, that tends to affect us negatively. In fact, my student also gets affected with those very, very severely. So, they can see, possibly, maybe an older colleague, their approach is in a wrong direction. But when they try to address it if that person is dismissive, they won't have that sense of authority even if they are in a senior position. And they won't be able to just stamp their authority in that sense because of those culture.*

This quote offers a glimpse into the real-life cultural dynamics that impact student interactions in the clinical workplace, particularly regarding the respect and authority traditionally afforded to elders within certain cultural groups. The clinical instructor highlights one detrimental effect of cultural conditioning, where students may feel a sense of disempowerment when confronting an errant elder, as well as a potential disjuncture between their cultural upbringing and the expectations of the clinical workplace.

Sub-Theme 3.2. Cultural and social aspects in developing effective communication: Students and graduates

From the students' perspective, most experiences cited were about the complexities and challenges that arose when providing healthcare to patients from diverse cultural backgrounds, particularly regarding norms around modesty and gender interactions.

S2: We also have patients with a lot of different cultural backgrounds as well. In one of my personal experiences, we had to do a test for a patient which required them to loosen their top so that we could access the muscle that we needed to test. She was very, very conservative with regards to clothing removal. She was accompanied by her husband, which kind of made it feel a little bit awkward because we asked her to remove her clothing and he's there and like not happy about it...

While students recognised the discomfort felt by the patient, this quote highlights the significant gap in effective communication and a need for students to be trained in communicating in culturally appropriate ways so that the patient's dignity is maintained. Furthermore, in these instances, students should be sensitised and guided on seeking alternative methods to ensure the patient's modesty while performing the necessary assessment. The ability to respect cultural norms while providing necessary medical care is essential for positive patient experiences and outcomes in diverse populations, as shown in the following reflection from another student:

S4: …in the NICU for example…if we have to take a baby to the theatre, and they're working on the baby's abdomen, they have to remove like the cultural ropes that are around the abdominal area. So some of the doctors they tend to like discard them…like the surgeons…when they're preparing the area, they usually just chuck it away. I just take or collect and then I give it to the babies parent. And then I explained to them that "OK, we were working on this particular area, so we had to remove it. We're sorry, we didn't mean to disrespect any cultural aspect, but we were working on that particular area and then maybe like after some time you can put it back." And also explain I'd have a higher infection rate you know introducing that foreign object.

In this case, the student was able to demonstrate respectful and empathetic care by recognising the cultural significance of the ropes and taking time to collect them and explain to the parents the reasons for the removal. The student also demonstrated a degree of emotional intelligence by showing that they valued the parents' feelings and cultural practices. These are all traits of effective communication.

4.3.3.3 Sub-Theme 3 Attitudes and behaviours of educators

This category explores how various attitudes, behaviours, and interpersonal dynamics in the clinical workplace affect the development of effective communication skills. The dominant concept was one of role modelling. In CT, academic and clinical educators are meant to exemplify the professional and ethical standards required by the programme, which then shapes students' conceptualisation of communication, patient-centred care, and professional integrity, all of which are crucial for their development into independent practitioners. Positive role models guide students with both technical knowledge and a practical example of how to manage interpersonal and professional scenarios.

Sub-Theme 3 Attitudes and behaviours of educators: Academic and clinical educators

The importance of role modelling was highlighted by academic and clinical educators, who acknowledged that students were constantly observing their behaviours.

> *A2: They're all modelling…If staff can improve their communication with students, even the students will improve and will have good, effective communication.*

The academic further elaborates on the ripple effect of role modelling: when educators demonstrate clear, and empathetic communication, students are more inclined to emulate these traits when interacting with patients, the multidisciplinary team and colleagues. This sentiment was supported by the clinical educators who emphasised the importance of students learning effective communication through observation in role modelling.

> *C2: And the best thing that I feel we can develop these attributes is by teaching by example as qualified. So you can't be, you can't be preaching something else and not doing it.*

These quotes highlight the significance of the consistency of behaviours that educators wish to instil in students, particularly when cultivating key attributes like effective communication.

Sub-Theme 3 Attitudes and behaviours of educators: Students and graduates

Students' experiences varied on this matter. Where role modelling was positive, students were able to develop the requisite effective communication attributes and acknowledged senior staff in this development.

> *S7: Interacting with experienced professionals has been invaluable. Role modelling from senior technologists has also influenced how I communicate.*

This quote reinforces the importance of role modelling in developing interpersonal skills required to work in complex clinical settings. The impact of negative role modelling was also described, where intimidating personalities thwarted open communication, leaving students feeling insecure and undervalued.

> *S3: She also has quite a short temper, so that was very daunting for me and very scary for me and still is. So I feel like that type of personality…that aura that she creates does sort of affect your confidence as a student, especially because you feel like nothing that you say is being taken seriously by certain doctors or consultants.*

In view of the significant impact of negative role modelling, educators should be cognisant of how their demeanour affects student learning experiences, particularly when it involves developing effective communication. This is particularly important given the multicultural, multilingual, and diverse socio-economic landscape of SA; students are influenced not only by what they learn but also by how they observe experienced practitioners interacting across diverse patient backgrounds and clinical contexts.

So, while an understanding of the cultural, social, and interpersonal aspects is essential for the development of effective communication GA, student clinical technologists must further refine the complex task of adapting their communication styles to meet the specific demands and challenges of diverse clinical settings, which will be explored in the next theme.

4.3.4 Theme 4 (T4): Adapting communication to contextual demands of professional practice

This dominant theme sheds light on the experiences of how CT students learnt to modify and adapt their communication approaches in response to diverse clinical scenarios and workplace demands. A sub-theme named Contextual catalysts in EC development further examines this theme.

Adapting communication to contextual demands of professional practice (T4): Students and graduates

Graduates reflected on the considerable demands imposed on CT students when they entered the clinical workplace and the impact of these demands on their wellbeing er completion of the degree.

> *G3: There's pressure in some units. They have just their own curriculum. So if you are in that hospital-based curriculum, school curriculum and on top of that, you're adapting. It just becomes too much for some students, which some they end up dropping out.*

This participant's experience suggests that managing multiple curricula and adapting to various environments can be overwhelming, particularly when done simultaneously, as this involves an adjustment to their communication styles in accordance with each curriculum. Another graduate's experience highlighted the high workload that students are expected to handle.

> *G4: You're tired. You just have a lot of things going on. This pile of assignments, you're preparing for your test. Even yourself, you're not OK mentally. And then you go to hospital, then you find these very difficult patients.*

These demanding adjustments can result in burnout and manifest as communication fatigue, where students are less apt to engage meaningfully with the healthcare team and patients, directly impacting the development of the effective communication GA. This was also expressed by students, who raised concerns and frustrations about being treated as employees, rather than as students.

These responses suggest a need for the development of resilience and coping mechanisms to adapt to these contextual demands. Students found the shift from the classroom to the clinical

workplace somewhat overwhelming, expressing the emotional challenges, especially when engaging in high-level communication activities like research presentations or working in theatre under minimal supervision. However, as shown in the following quote, they were able to develop their communication skills to meet the contextual demand through a transformative shift, where the student recognised the imperative to "speak up" and communicate effectively, even in the face of personal discomfort.

> *S3: It has been very nerve-wracking as well and scary. But it also taught me that it's for a good cause because I need to be able to speak up. In for example, the theatre setting, if I don't communicate effectively, I can be putting a patient at risk. So that for me, gave me sort of a little bit of confidence boost in that regard that I need to be able to speak up because it's very, very important.*

Another student conveyed how the contextual demands of clinical practice required communication adaptability. He suggested that interactions in the clinical workspace may be influenced by both practitioners and patients:

> *S2: And at times, the communication skill there, it can either be a barrier to you or it can be accommodative depending on now the people's moods, people's emotions, you know, because as people we all have problems.*

Effective communication in such contexts would require a student to go beyond mere technical mastery and develop an awareness of the psychosocial dimensions at play. Another aspect of effective communication is being able to communicate with a diverse audience. This was illustrated by students who emphasised the need to adapt communication complexity to the level of the patient to facilitate mutual understanding. As one student explained:

> *S6: So at times you I find that you have to be more simplistic rather than trying to be more complex and using what patients cannot understand or decipher… at times, you'd rather have to try and use examples of stuff that you can either enhance or maybe you reduce so that they can understand a certain point.*

This quote suggests that the student was aware of the incongruity between a practitioner's lexicon and the layperson's familiarity with medical concepts. This was important because it shows that students understood that effective communication was not a one-size-fits-all but rather involved

a process of modifying the interaction to the specific individual. In the health professions, this ability is crucial for building trust, ensuring comprehension, and ultimately, providing patient-centred care. This adaptive capacity, when a student is able to demonstrate an appropriate communication response to contextual clues, is a hallmark of effective communication.

Adapting communication to contextual demands of professional practice (T4): Clinical educators

The demands of the clinical workplace also seemed to be recognised by clinical educators, and a variety of strategies were offered to assist students to develop the confidence needed for appropriate, effective communication in a particular clinical context. For example, one unit had a supportive structure where senior students mentored the juniors. As a clinical educator reflected on their experience:

> *C3: We always work with the buddy system. So already a third year starts putting things into place. They're just watching and learning and developing so that when they do get exposure to a situation like that, they already know how to handle it. We also present them with opportunities to formally and informally…where they would need to come and hand over to the other staff members during doctors' rounds. Sometimes the doctors ask them questions which they would expect them to know…*

In so doing, a safe space was created for students to observe and learn before taking on responsibilities themselves, allowing for gradual skill development. This quote also suggests that when students are allowed to practice handovers and answer doctors' questions, they can be better prepared for the collaborative nature of the clinical workplace, enhancing their ability to communicate critical information effectively to a diverse range of audiences.

Another clinical educator emphasised the difficulties encountered by students where English was not their first language in achieving effective communication in the clinical workplace.

> *C2: So we've come across those types of students that really, really battle with effective communication, but they know how to do the work….like how to run the cell saver. But if someone says "OK, explain how this works"…and then they battle.*

In this quote, the educator notes that although students possessed the requisite technical abilities and expertise to undertake diagnostics, they found it challenging to convey their findings orally.

In the multilingual SA context where these students train, the demands to adapt to the clinical environment as well as language barriers can severely impact the development of the effective communication GA.

While there are language and cultural challenges inherent to the clinical workplace, the SA healthcare context provides various factors that influence how students develop effective communication. The following sub-theme explores how these ‘catalysts’ shape the development of effective communication through participants’ experiences and reflections.

4.3.4.1 Sub-Theme 4.1: Contextual catalysts in EC development

This category explores how specific clinical scenarios and experiences serve as catalysts for developing adaptive communication capabilities. Participants' narratives revealed how these contextual demands not only challenged their existing communication skills but also stimulated the development of more sophisticated and flexible communication approaches.

Sub-Theme 4.1. Contextual catalysts in EC development: Students and graduates

These reflections were predominantly offered by final-year students and new graduates who spoke about how the diverse clinical contexts catalysed their development, not just in terms of interacting with patients from diverse cultural and linguistic backgrounds, but also in terms of their emotional maturity. For example, a final-year student shared the following experience:

> *S8: However, I feel like sometimes it's also there's a limit. For example, you can't be standing there and someone swearing you all the letters of the alphabet and you'll be like, OK, you know what? You can ignore it because yes, we are people, and we also have feelings. But it also comes with the effect of communication. Maybe you're not going to just stand there and scream and swear at them back. But you know you can simply tell them “… you know, I don't appreciate the words that you are using on me. I'm just here to do my job.”*

Another student expressed their discomfort when asking patients questions about their sexual health. In this context, these questions were necessary for diagnostic scoring as part of a questionnaire.

> *S2: And another experience was that it was a female patient and my colleague, he's male. He was asking the questions and another part of the questionnaire related to their sexual activity and their sexual arousal, which is an uncomfortable thing for me to ask, but I do it because I need to learn how to, you know, speak professionally because I get shy for things like that.*

Although this is a common experience of health science students, this student was able to self-reflect and realise her own limitations and biases but still expressed a commitment to learning how to engage in professional dialogue about sensitive issues. This eventually resulted in her adapting her communication style to a more empathetic one while preserving the patient's dignity. This quote has implications for the curriculum, where strategies to formally prepare students to engage in these difficult and sensitive conversations should be introduced.

New graduates' experiences also highlighted the demands of a multilingual and multicultural clinical context, which can complicate communication and patient relationships.

> *G3: Different races, different language barriers and just different interactions. I mean those kinds of things where you're just being well equipped on how to think fast, you've got this situation, how to react in the situation. Do you have to show your emotions? I mean, it got to a point where you'd have to hide your emotions.*

However, the demands of the context catalysed the development of self-reflection and resilience in this participant. The graduate goes on to reflect:

> *G3: You just put yourself through to just say "this is what I want to do". I feel like being prepared mentally, it's one of the most important things. I mean learning to not take things personally.*

Here the graduate adopted a proactive strategy for handling their experiences, acknowledging that mental preparedness could bolster their resilience in this challenging environment. This has

major implications for the development of effective communication since the ability to regulate one's emotions would allow the student CT to maintain professionalism, even in difficult circumstances.

Graduates also expressed consternation when having to deal with difficult patients, something that they would not have been prepared for previously. Others still struggled with communicating with severely ill patients, even at an advanced stage of their undergraduate careers. Interacting with patients with multiple comorbidities presented a challenge for student clinical technologists, in addition to being required to have the requisite knowledge and to be able to simplify these so that the patient did not become overwhelmed. These patients may also be apt to experience anxiety about the state of their health, which necessitated effective communication even more, where a student would be required to demonstrate empathy and reassurance. These complex demands probably explain why students grappled with them even through independent practice and could be addressed by academic and clinical educators in the preclinical and clinical years.

Sub-Theme 4.1. Contextual catalysts in EC development: Academic and clinical educators

With regards to catalysts for developing effective communication in the workplace, academic educators highlighted the importance of the clinical environment, where the real transformation occurred.

> *A4: In my experience with the second year right to 4th year and the soft skills you find that students develop.. you would see that at 3rd and 4th year, knowing these students from first year, they have matured. I've actually listened to a student being spoken to by a patient and a supervisor, and I was really, really impressed by the way the student responded.*

In this quote, the academic educator reflected on the significant progress that students made in their communication skills as they advanced through their clinical years. She also suggested that the development of effective communication is not just the responsibility of students but also of clinical educators who guide these interactions. However, the clinical workplace can also stymie the development of effective communication. As reflected by another academic educator,

A2: Students…are being used as a workforce., which may impact on them achieving desired attributes.

The reality of the challenges which beset a resource-constrained SA public healthcare system means that student clinical technologists may be expected to function as part of the workforce to provide essential services to augment staff shortages. As alluded to earlier, the pressure to function as part of a workforce could detract from developing students' ability to engage meaningfully with patients and colleagues, and hence the development of communication competencies will be affected.

Clinical educators also weighed in on what they perceived to be influential in developing effective communication in the clinical workplace. The experiences below suggest factors that hinder or encourage the development of requisite communication attributes.

C1: And our attitude and behaviour towards them is exactly that…not belittling them because they have less information. The first thing I said to them whenever they come on the first day …me being a supervisor…it doesn't mean I'm cleverer than you. It just that I went to school ahead of you, but it's not a level of intelligence. Possibly you guys are cleverer than me, so it's my privilege to teach clever people.

In this quote, the clinical educator believes that a non-hierarchical environment with mutual respect between educators and students created a supportive space where students would be more inclined to ask questions, discuss cases and communicate their development needs than the opposite. The environment as a catalyst is also alluded to in the following quote, where training units that restricted active student involvement hindered the development of effective communication in that speciality.

C4: I feel like it depends more on the on the training unit…sometimes you get those students where they complain they are not getting enough training…they are just observing cases and they can't do cases alone…which impacts their development in how they understand and communicate the procedures, pathologies, etc.

In this instance, when CT students were limited to observation only, they missed opportunities to develop and articulate their understanding of procedures and pathologies linked to their speciality.

This notion of missed opportunities is reflected in the following quote, but here, it is due to a lack of initiative on the students' part.

> *C5: I have a situation where two qualifieds [qualified technologists] will go into a mobile EEG on their own and a student will sit there. But they don't deal with them, and the student misses out on the learning experience.*

Here again, the lack of willingness to take up learning opportunities is highlighted, and this can impact negatively on the training experience as well as healthcare provision, as students will not develop the requisite confidence to perform, interpret, and report diagnostic findings appropriately.

To conclude this section, adapting communication for contextual demands in the clinical workplace is crucial for the development of CT students into independent practitioners in SA. As students wade through the complexities of diverse patient populations and clinical contexts, their dual role as both students and workers can complicate this adaptation process, often resulting in missed opportunities for skill development in effective communication. It is important to address these challenges and explore strategies which will enhance students' communication skills and be responsive to the diverse needs of patients in SA. The following recommendations from participants outline steps to support and improve the development of the effective communication GA in preparation for the workplace.

4.4 Recommendations from Academic Staff, Clinical Educators, New Graduates and Students

The following broad recommendations were offered by participants to enhance the development of the effective communication GA in the CT programme.

4.4.1 Conceptualisation and alignment of graduate attributes

The importance of a common conceptualisation of the effective communication GA between stakeholders was highlighted. A common conceptualisation ensures consistency in how communication skills are taught, reinforced, and evaluated at the university and in the clinical workplace. This would include a thorough negotiation and understanding of communication

competency development across each year of the degree. For example, students enter the clinical workplace with foundational communication skills; these would be extended to interprofessional communication in the 3rd year and advanced professional communication skills in the 4th year.

> *A4: Advocating for more discussion, more round table discussion where we can actually understand each other exactly, especially for these graduate attributes. Communication is foundational.*

4.4.2 Curriculum revision

Curriculum revision emerged as a key focus for enhancing the development of effective communication GA in CT education. Feedback from stakeholders, particularly students and clinical educators, suggested a need to shift the focus from the general and business-orientated modules to those that directly address the interpersonal and psychological dimensions of patient care. For example, the introduction of the Psychodynamics module would sensitise and orientate students to communicating with ill patients and also on how to deal with challenging clinical scenarios.

> *C6: I think they need Psychosocial teaching in communication and self-reflection. But when it comes to the Gen [general] Education modules, I think it would be more valuable for the students to have a semester course in crucial conversations and methods of communication rather than, for instance, small business management.*

This was also supported by students.

> S*1: They can even add modules which may be based on soft skills because soft skills also often end up being an effective communicator because if you don't really have like soft skills, you can't really communicate with the patient…they can even also add psychology modules. This will also help with the understanding that the patient's point of view and helps us understand the context to become more effective communicator when it comes to workplace.*

Another clinical educator opined over the extensive number of modules that made up the curriculum, some of them not adding any benefit for student development into independent practitioners.

C4: There are too many modules and also the general modules for me. I did not see any benefit from them…like the cornerstone module. I can't really remember the other modules but…the healthcare modules should be the module that you benefit from. But I don't really see any.

This sentiment was shared by the academic educator, who also highlighted a significant challenge in the current curriculum structure. While active engagement is vital for deep learning, including the development of effective communication competencies, it often leads to slower content coverage.

A2: The curriculum that we have…sometimes there's so much engagement but then we end up not finishing the syllabus, and the students have got so many modules that they do.

This risks educators not completing the syllabus and students not fully developing and articulating this essential GA. A more streamlined curriculum with a more manageable load will allow educators and students to rather focus on the development of critical competencies.

4.4.3 Other pedagogies for developing the effective communication GA in Clinical Technology

Community and social outreach can also significantly enhance the development of effective communication skills, preparing students to provide culturally competent care in South Africa's diverse healthcare landscape. This was recommended by the academic educators, with an appreciation that this approach would expose students to diverse community settings, allowing them to practise, refine, and adapt their communication to real-life scenarios.

A4: Community social involvement is a major component in developing communications. Once an individual is developed within community engagement, you tend to understand many kinds or, or you are able to [sic] develop these competencies….

Since there is no formal community engagement activity currently in place, any curriculum revision should consider the inclusion of this impactful pedagogy to prepare students to provide culturally competent care in South Africa's diverse healthcare landscape.

4.4.4 Student preparation

Student preparation for clinical practice is very important, especially with consideration to the multicultural, multilingual, and socio-economic diversity in the South African healthcare context. As evidenced by participant feedback, the call for better student preparation was a dominant one, and several major aspects that speak to preparation around effective communication that resonated across the datasets will be examined below.

> S8*: But also…just a bit more on what to expect when you're actually going into the working environment.*

4.4.4.1 English language: written and oral

Although the SA healthcare context is multilingual, English is the main language of instruction and communication in many healthcare programmes. English is also frequently used in clinical settings as the main language of communication, particularly when there is a diverse multidisciplinary team, which makes proficiency in English essential. Participants expressed a need for improvement in English communication, both written and verbal.

> S*1: I still feel like they can still do more adjustments or improvements in our qualification. Maybe they can do those improvements by maybe adding more modules which will help us with covering the case … for the one I just mentioned, which is the language.*

Academics recommended a basic communications module, which is not currently part of the curriculum structure.

> *A3: I think it's important to teach basic communication skills…basic communication that they might not have experienced from their backgrounds, maybe we should do that earlier on.*

This was also supported by clinical educators, who emphasised the need for improved written skills.

> *C2: For those students that really are battling with English, having extra English classes available to them would really assist. And it shouldn't be just learning English. It should*

come with testing them, making them write up…like how we used to do compositions because that's the only way you know that you can now construct and communicate effectively.

C6: Maybe we need to emphasise a little bit more…proper writing.

So, while participants suggested that improved student preparation for clinical practice hinged on enhancing English language proficiency and made recommendations to that effect, graduates felt that inclusion of other languages for communication in the clinical context was also important.

G4: I think being in the clinical environment now, I do find it difficult sometimes in terms of speaking to patients and I feel that maybe that would have helped even if we if we did a short course on the language that we'd be using for patient interaction.

This recommendation is especially valuable, especially in a multicultural context like South Africa, where many patients may be more comfortable expressing their needs in their native languages. When practitioners are able to communicate in the patient's vernacular language, rapport is built through an appreciation of the cultural dynamics.

4.4.4.2 Peer mentoring

This important recommendation was raised by clinical educators as a strategy to improve student preparedness for clinical practice. In the South African context, where resources may be limited in some settings, particularly in the public health sector, a peer mentor would provide guidance and support on the expectations for clinical practice, including communication protocols.

C3: I think you need to get students from Senior 3rd and 4th level to coach these students because they're already starting to speak to people in the profession already in their study. And 4th year to start coaching them along so that they also understand what's their expectation when they come to 3rd and 4th year level and also helping them, assisting them in communicating. Maybe somebody of the same language or somebody of the same background already who you could get as a coach to assist them

This support would soften the transition into clinical practice and bolster the students' confidence in their abilities for good interpersonal communication and clinical decision-making.

4.4.4.3 Handling difficult or sensitive issues in the clinical space

Preparation for handling difficult or sensitive issues is essential for students in CT, as it equips them with the tools and emotional resilience to handle challenging clinical scenarios. As evidenced by participant responses, there were various challenging cases, which students and new graduates did not feel prepared to deal with. Although some instances provided a catalyst for student development, others that required emotional fortitude exacted a traumatic effect on participants, as shown in the quote below.

> *S4: But if it's possible maybe to have a bit of something to sort of prepare us. Because I remember the first patient. I learned the hard way not to be attached to patients. Because there was a baby. I'm in the NICU. She was doing so well. She was improving like, you know, it was everybody's kid. And then when the doctors decided that it was like time for them to withdraw. OK, to do what is palliative care. Unfortunately, the baby died and it was a lot. I don't want to lie. It was like a lot and emotionally a lot to handle.*

Clinical educators also recognised the gaps and made recommendations regarding simulation and role-playing in the preclinical years.

> *C2: If you have those mannequins...because it would be nice if one day they come…they don't even know what's happening… the first years and they're going through that lab with the mannequin closed, resembling, you know…. (a covered corpse). Just to give them that you know and then we discuss what happens if you go into an ICU and you're going to do a bed checks and you get there, and there's a closed body bag.*

> *C5: I know I've had experience with this in other fields where there's counselling involved and the way that one assesses a person's ability to counsel is that you have a mock. Either telephone call or a mock face to face and people then will give you a scenario and you judged or you marked on how well you assess.*

These strategies can be undertaken in the laboratory or classroom, in a safe and controlled environment. By simulating real-life, challenging scenarios, students can practise their

communication techniques, receive immediate feedback from educators and peers, and thereby allow themselves to refine their emotional responses to these demanding situations.

4.4.5 Development of cultural tolerance

As alluded to earlier, a defining characteristic in SA's healthcare is the diversity in patient populations. As such, students training in the health professions need adequate preparation in terms of cultural tolerance. This appeared to be lacking in my study and was raised by all stakeholders, most prominently by the clinical educators.

> *C1: The one thing I will say also is I feel even DUT in the teaching these are things… they need to prepare students for the multicultural clinical environment…, because most of the students on that level … they are clueless and some it takes them longer to adapt to those type of environments.*

Here, the participant highlights how students lack sufficient preparation to interact with individuals from varied cultural backgrounds. The implications of this gap may translate into miscommunication, misunderstandings, reduced patient trust, and compromised healthcare outcomes.

4.5 Conclusion

In summary, this chapter explores four themes, namely, (T1) Effective communication: a continuous journey, (T2) Organisational factors that influence effective communication development, (T3) Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace, and finally, (T4) Adapting communication to the contextual demands of professional practice. The chapter concludes with several important strategies to improve the development of the effective communication GA in CT students.

Academic and clinical educators encouraged more dialogue and collaboration to refine the conceptualisation of this GA for ensuring consistency in teaching and assessment of communication skills in both academic and clinical settings. Both students and educators

recommended revising and streamlining the curriculum to focus more on interpersonal and psychological aspects of patient care for student clinical technologists to acquire discipline-specific communication attributes necessary for the diverse South African healthcare settings.

The findings also emphasised the need for adequate student preparation for clinical practice, with particular attention to the importance of English language proficiency, while also recognising the value of multilingual communication in South Africa's diverse healthcare context. Strategies for peer mentoring and for handling difficult or sensitive issues were suggested for students to develop the emotional resilience and communication attributes required for their future roles.

In the next chapter, the Discussion, I will focus on the interpretation of these findings using the extant literature, the practical and theoretical contributions of my research, as well as recommendations for future research.

CHAPTER FIVE
DISCUSSION AND CONCLUSION

5.1 Summary of Findings

This chapter aims to critically analyse the results presented in Chapter Four, providing insights into the understanding of the experiences of students, new graduates, and academic and clinical educators within the CT programme at the Durban University of Technology regarding the development of the effective communication GA. In this chapter, I discuss the study's results in alignment with the aim and objectives outlined in Chapter One and the results obtained in Chapter Four. My research will be contextualised within the existing body of research, and it will provide insights into the study's broader implications, address its limitations, and identify avenues for future exploration.

I identified three gaps through the examination of the literature: the first gap concerned the lack - of any data reported or published on the findings about the conceptualisation of GAs from the perspective of students, new graduates, and academic and clinical educators in CT, in a South African context. The second gap concerned expectations of the effective communication GA, once again, from the perspective of students, new graduates, and academic and clinical educators, using the DUT standards document as a reference. The third gap was the lack of understanding of how this attribute is developed and operationalised across the different clinical contexts, particularly in terms of the lived experiences and perspectives of students and new graduates. Additionally, perspectives from academics and clinical educators involved in its integration, development, and assessment were collected and analysed thematically. From the focus group discussion and interviews, I developed four themes through an iterative, deductive analysis to explore how students, new graduates, and educators perceived and experienced the process of the development of the effective communication GA.

Figure 5.1 below summarises the themes and their interaction with the various contexts.

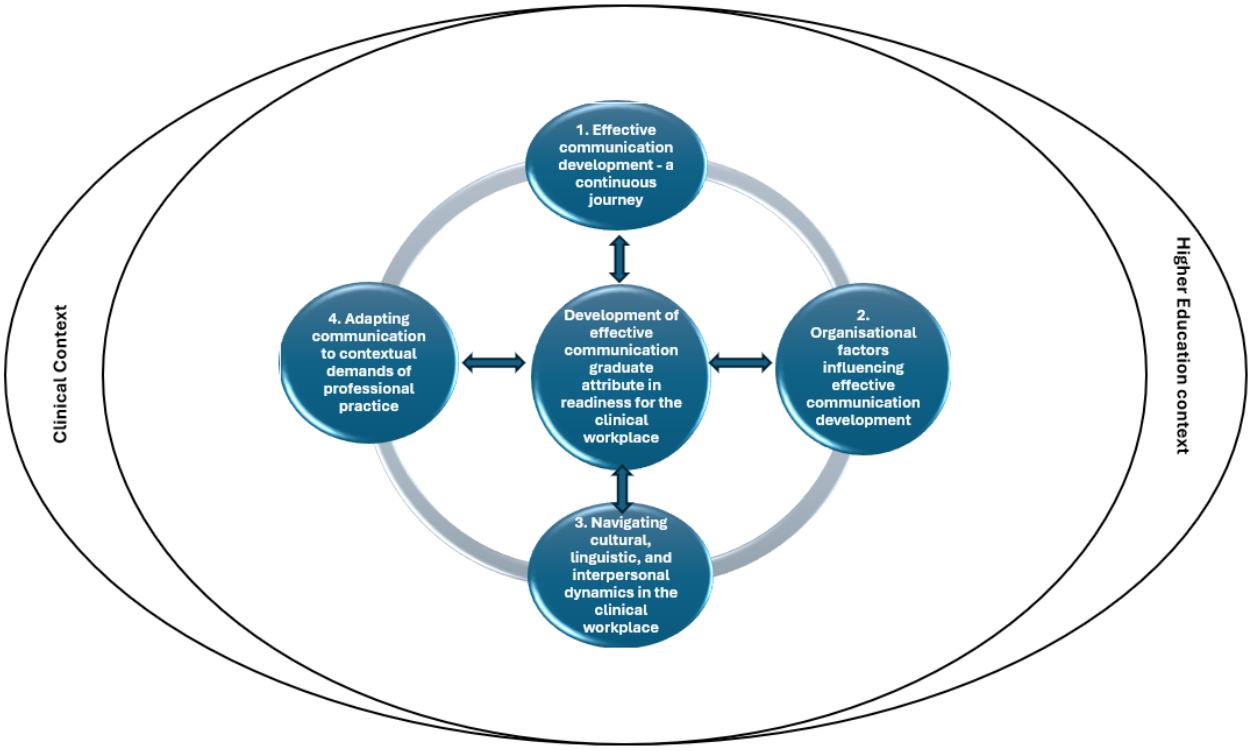

Figure 5.1 Graphical representation of themes and their interaction with the various contexts

The rationale for the sequence in Figure 5.1, as outlined in Chapter Four (4.3), follows a developmental trajectory that aligns with the increasing complexity of professional roles and responsibilities in healthcare education (Holden et al., 2015). This reflects the shift from learning communication as a standalone skill to integrating it as an essential component of professional identity and practice (Morreale, Valenzano & Bauer, 2017). Since this process is iterative, requiring ongoing reflection, feedback, and adaptation to the dynamic clinical contexts, particularly in SA, I chose to begin with 'Effective Communication Development: A Continuous Journey' as the foundational theme, being cognisant that competency development in the clinical environment is not linear but rather an ongoing trajectory of learning and adaptation. I ranked 'Organisational elements that influence Effective Communication development' second to reflect my understanding that individual development is deeply embedded within the wider institutional and systemic frameworks (Engeström, 2001). I surmised that this sequential position would facilitate an understanding of how organisational structures and stakeholder dynamics shape the environment in which communication competencies develop.

I placed the theme, 'Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace,' in the third position, as it builds logically from the established organisational context. This theme also acknowledged that cultural and linguistic competence development was deeply embedded in social and professional contexts (Bachmann, Pettit & Rosenbaum, 2022) and explored the complex relationship between individual development and sociocultural factors which characterise the South African healthcare context.

The theme 'Adapting communication to contextual demands of professional practice' was placed in fourth position, as I understood it to represent the synthesis and practical application of developed competencies and align with Kolb's theory of experiential learning (Kolb, Boyatzis & Mainemelis, 2014), which outlines the convergence of theoretical understanding and practical experience in the clinical workplace.

5.2 Discussion of Themes

5.2.1 Effective communication development: an ongoing process

The process of the development of the effective communication GA, which occurs throughout the undergraduate degree, is complex and is impacted by several factors and shaped by various contexts. These factors include students' backgrounds as well as their attitudes towards the HEI. Morreale et al. (2017) supported this by suggesting that effective communication is central in all facets of a health professions student's life and recommended that communication instruction be conducted by those trained and knowledgeable in the discipline. According to Kapur (2020), communication models may be used as a theoretical lens to explain the process of communication development in human interactions and are categorised into three models. In the linear model, there is a unidirectional communication process where information only moves from the sender to the recipient, notably omitting feedback. In the other models, feedback forms a crucial element for successful interaction in both interactive and transactional models, which emphasise two-way communication (Boyd & Dare, 2014). My study indicates that students who were given constructive feedback and who were permitted to question the feedback were more inclined to shift from being mere information receivers to active knowledge co-creators. The response from participants suggests that they were then able to make the transition and acquire the substantial communication skill development they were expected to articulate in the diverse

contexts they were exposed to. The ability for participants to dynamically switch communication roles gives each person the chance to start a conversation and facilitate interaction between lecturers and students, allowing them to encode and decode the learning concepts that are communicated. This is referred to as the transactional model as further described by Siahaan & Sihotang (2021). As a student advances from school into HE, these communication models can be used to track their development trajectory, as the progression from linear to advanced communication models reflects the growing intellectual and professional demands of the HEI.

Through the process of developing effective communication, my study identified that this skill encompasses multiple dimensions. These range from straightforward verbal feedback to more complex, higher-order academic tasks, such as delivering research presentations to diverse audiences. Additionally, effective communication was found to be particularly significant in multicultural and multilingual professional contexts, where adaptability and cultural sensitivity play crucial roles. I found that academic educators supported the development of effective communication in the classroom through structured activities like integrated group projects, proficiency assessments, practical assessments, and clinical site visits that bridged the academic and clinical domains. Students and graduates reflected positively on how such experiences enhanced their capabilities to communicate in difficult situations. Previous work has supported this by stating that oral presentations and written information should be supported by active, practice-orientated strategies, including feedback and discussion groups for effective communication development (Berkhof et al., 2011). The university environment should push students beyond merely absorbing information to actively participating in academic discussions, challenging established theories, and contributing new ideas to their fields (Lee, 2017).

In the clinical context, CT students are expected to learn to deal with hierarchical communication structures and develop the ability to communicate effectively across diverse professional environments. I found this development was supported through structured learning experiences led by clinical educators and the multidisciplinary healthcare team, who impacted both interpersonal communication and technical skills development in a negative or positive manner. A negative was the mistreatment students experienced from clinical educators or other team members in the clinical environment, whereas the positive included strong role modelling by clinical educators predominantly and the development of professional communication traits. This is supported by recent literature about hierarchical communication in the clinical space, which is perceived to establish a social order and expected rules for conduct (Vanstone & Grierson, 2022).

Research by the same authors on medical students describes how these hierarchies are important for demonstrating professionalism and developing successful relationships with peers and supervisors (Vanstone & Grierson, 2019).In the South African context, these hierarchical structures influenced by race, culture, and historical oppression can hinder open communication between students and educators or between junior and senior professionals. Kumalo (2023) discusses how the privileging of Western epistemic paradigms in academia perpetuates these dynamics, often marginalising indigenous knowledge systems and perspectives. Furthermore, the development of these skills and attributes is not straightforward; as pointed out by Lingard et al. (2005), any newcomer (like a student CT) to a complex environment (like the clinical workplace) may initially perceive such constructions as social chaos.As they interact with other healthcare team members, the newcomers gain implicit and overt cultural knowledge of each member's professional roles; in addition, relationships are formed. The critical aspect is that once these perceptions are formed, they are difficult to alter later on, hence the importance of a positive initial interaction. This data highlights a contradiction, in accordance with the AT (Engeström & Pyörälä, 2021): here differences in supervision practices and frustration of clinical instructors with students whom they deemed not having the requisite communication skills to enter the clinical workplace indicate contradictions in the division of labour, where responsibilities for effective communication development were unclear.

It is established that effective communication skills and collaboration are key attributes of healthcare practitioners (MacDonald-Wicks & Levett-Jones, 2012; Matthews & Naidu, 2019; McAllister et al., 2011), and both are needed for training health professions students. However, while clinical educators highlighted the importance of collaborative clinical learning environments for students' holistic development as an important finding in my study, some students and new graduates noted challenges that hindered this growth. These challenges included instances of hostile workplace environments and limited opportunities for certain students to engage fully with the multidisciplinary team. This could be explained by the fact that the healthcare team represents the core of patient care and clinical education, with both activities being grounded in situated language practices (Lingard et al., 2002). These language practices encompass the complex verbal and non-verbal communication systems that professionals use to perform their duties and interact with one another. When student healthcare practitioners engage with situated language practices and participate legitimately and peripherally in healthcare team interactions, they gradually develop an understanding of their discipline's intricate boundaries, values, duties, and aspirations (Lave & Wenger, 2001). Here, communication practices would serve not only as a

technical skill but also as a profound socialising mechanism and pathway to professional enculturation and identity construction (Lingard et al., 2002). So, the effect of the multidisciplinary team on the development of effective communication cannot be underestimated.

Another aspect that featured prominently in participants' responses was the value of mentorship within the multidisciplinary team in developing effective communication, and this was articulated by both students and educators. The findings confirmed reports from other studies (Feeley et al., 2024) that mentoring for under-represented students, as was the case in my study, across all mentoring relationships, yielded positive outcomes, including peer, formal, and informal structures, for their academic performance and career pathways. The opposite was also apparent.

Both academic and clinical educators in my study expressed concern regarding students' attitudes and behaviours, which included a reluctance to participate actively in learning. Previous research suggests that active class participation is associated with higher academic performance (Kelly et al., 2020), while lack of participation may be due to several factors, of which dissatisfaction with the learning environment featured prominently (Holmgren & Bolkan, 2014). A recent study showed that student beliefs about the classroom culture, behaviour of the educator, and their own abilities to learn significantly influenced how they engaged in the classroom (Goke, Berndt & Rocker, 2021), and this aspect was regarded as important for further exploration in this cohort under study.

The findings of my study suggest that poor written skills were linked to an impediment in developing effective communication, and consequently, student progress in the clinical workplace was subdued. Writing itself requires a deliberate cognitive process of systematically organising ideas into a coherent, logical sequence, needing linguistic proficiency as well as competence in grammar and language structure (Darmawangsa et al., 2020), notwithstanding the inclusion of discipline-specific writing skills. The danger here is that inadequate written and discipline-specific communication among healthcare professionals, in this case between the student CT and supervisor and other multidisciplinary team members, compromises the learning opportunity and can lead to compromised patient care (Braaf, Riley & Manias, 2015). At this point, I am reminded once again of Lave and Wenger's Legitimate Peripheral Participation (LPP) (Lave & Wenger, 2001), which emphasises the importance of students' existing knowledge as they join new communities of practice. However, this was not apparent in all CT students, as it seems there was an assumption of a uniform English proficiency of students, which I have found conflicts with

the diverse linguistic backgrounds revealed from the study's data. The absence of a multilingual language policy at DUT, at the time of this thesis completion, exacerbates the language challenges and seems to favour students with stronger English skills, giving them an academic advantage. This perpetuation of historical inequalities challenges the core tenet of LPP, as language barriers may hinder students' progression from peripheral to full participation in academic communities. Given this, HEIs should reconsider their approach to language diversity. The need for linguistic tools and multilingual policy to address language barriers aligns with the AT (Engeström & Pyörälä, 2021), as these tools mediate the interaction between the subject (students) and the object (effective communication GA development). In my study, in instances where there was an absence of, or when students were unfamiliar with these tools of the profession, their participation and progress were delayed.

How students received and gave feedback was perceived to be influential in their development of the requisite communication competencies for the profession and was found to be crucial in my study. Effective clinical supervision includes supervisors giving feedback to students about their performance as well as engaging students to be able to accept the feedback and use it for improvement (Weallans et al., 2021). However, this may not ensue if students view the feedback they receive as being insufficient in both quantity and quality. Additionally, the effectiveness of feedback in the clinical workplace may hinge on the quality of the relationship between the clinical educator and student. As alluded to above, when the transactional model of communication is not used, it may result in students and educators not being able to actively initiate communication, which could impede professional engagement and mutual understanding (Siahaan & Sihotang, 2021). It likely explains my findings, and given the importance of feedback during clinical supervision, this has been identified as a potential gap to address going forward. This was expounded in another study on radiographers in SA, where feedback had a positive impact on student learning and achievement, but it also had the potential to cause developmental harm (Hodgson, Grobler & Morton, 2021). Ideally, there should be a continuum between informal and formal feedback and formative and summative feedback which integrates with students' assessment (Weallans et al., 2021). However, given the contextual challenges of the clinical learning environment in SA, the affordance for effective feedback needs to be explored. The mechanisms through which feedback is delivered and received are closely linked with structural and organisational factors, which shape communication dynamics and professional interactions; these will be discussed next.

5.2.2 Structural elements that influence Effective Communication development

While the effective communication GA was emphasised in university documentation (namely the DUT Standard and curriculum overview), I found that there was a lack of practical enforcement and support. My findings were similar to those of Wong et al. (2022) in the United Kingdom, who found that university staff also had difficulty translating 'top-down' GA policies into the context of their discipline. As explained by Barrie (2006), the epistemological uncertainties surrounding GA frameworks, in other words, the lack of a conceptual framework, have translated into many institutions struggling to operationalise abstract learning outcomes of the GAs into concrete educational practices. This was also evidenced in the South African discourse (Griesel & Parker, 2009), who suggested that the preclusion of an aligned vision and understandings of attributes could have been related to a misconception thereof.

In addition to these conceptual ambiguities of GAs, structural constraints such as academic workload and administrative burdens also played a significant role. This aligns with Burns et al. (2021), who highlighted systematic healthcare pressures including, excessive workloads and increased time spent on administration, contributed to staff burnout, leading to work-related emotional exhaustion. The emotional and systemic pressures on healthcare professionals can have a cascading effect, negatively hindering the development of effective communication skills, as staff may have diminished capacity to engage with students in meaningful ways (Gonçalves et al. 2019). As a result, students may receive less mentorship and feedback, as well as opportunities to observe and practice effective communication. As further expounded by Burns et al. (2021), and shown by my study, emotionally fatigued staff may unintentionally model poor communication behaviours. Additionally, this high-stressed learning environment may also lead students to internalise stress, further compromising their communicative competence (Gonçalves et al. 2019).

The disconnect between academic and clinical training sites also emerged as a key issue. Since clinical education occurs in clinical workplaces, the context, inter-relationships, and institutional systems have a profound influence on students' learning (Delany et al., 2015). In my study, this was shown in the periodic disjuncture and misalignment in communication between the HEI and clinical training sites, evident in students' and graduates' experiences, particularly regarding workplace demands and speciality-specific communication requirements. An additional tension that emerged related to students' and clinical educators' expectations of their engagements with

the effective communication GA development. My findings support previous studies where, despite policy reforms and incorporation of GAs in many HEIs' vision and mission statements, there remained a lack of conceptual clarity among educators about the term GA, both internationally (Barrie, 2006; Mahon, 2022; Wong et al., 2022) and nationally (Bitzer & Withering, 2020; Jorre de St Jorre & Oliver, 2018). It is recommended that a 'bottom-up' approach be utilised, where educators, students, and staff learn how to construct GAs through discussions and negotiations between stakeholders on what is ideally expected of university students during university and particularly upon graduation (Wong et al., 2022; Jorre de St Jorre & Oliver, 2018), in this case, for the effective communication GA. My study, therefore, contributes to and further supports the call for more research on all stakeholders to determine their level of engagement with the development of this GA since any organisational change requires some degree of consensus (Brits, 2018).

Furthermore, students and graduates reported stark differences in communication dynamics between private and public healthcare settings in SA, reflective of the objectives, values, and priorities of different stakeholders in healthcare, which sometimes contradicted each other. These contextual complexities may be explained by several contradictions as outlined by Weeger et al. (2021), who ascribed these to the institution's primary motivations. The contradiction here is that while healthcare workers may be motivated by humanistic goals, where patients' health is seen as the priority, improving hospital productivity may be an institutional imperative, translating into these different workplace cultures between private and public healthcare institutions, for example.

Students and new graduates called for HEIs to prepare them for the contextual demands of each sector, where stronger multicultural competencies and adaptability were needed in the public sectors, while private settings demanded more formal, service-orientated communication approaches. In SA, although private and public health systems exist in parallel, the public healthcare system serves most of the population, although many may be underfunded and understaffed (Burger & Christian, 2020; Coovadia et al., 2009, Carrim & Wangenge-Ouma, 2012)). My findings are reflective of the communicative demands for multicultural competencies that extend beyond traditional professional communication models in the public sector, whereas private sector communication approaches tended to prioritise standardised, service-orientated communication protocols that emphasised efficiency, precision, and structured professional interactions (Burger & Christian, 2020). These findings have particular relevance to CT students, given the cost involved in providing these services, and highlight the need for CT students to be

prepared not only for the technical aspects of their profession but also for the complex organisational and interpersonal dynamics that can shape communication practices in diverse clinical environments; these factors contribute significantly to the development of systemic tensions in professional practice of graduates/clinical students.

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Consequently, I feel that there are contradictions between the prescribed standards document in terms of the effective communication GA descriptor and the actual practices and outcomes in the academic and clinical contexts. In the AT (Engeström, Lompscher & Rückriem, 2016), these contradictions are essential for understanding and modifying systems. This is shown in my study through the misalignment between the conceptualisation of the effective communication GA and its actual development, which has identified an area for further investigation.

5.2.3 Navigating cultural, linguistic, and interpersonal dynamics in the clinical workplace

The third theme described the complex environment student Clinical Technologists encountered when communicating with diverse patients and multidisciplinary healthcare teams, which created a challenging but vital learning environment for their development into practitioners. It is established that students in health professions experience more stress compared to other students because of their exposure to more stressors, including the transition from the HEI environment to the clinical training context (Gillett-Swan & Grant-Smith, 2018), where, in the SA context, has its own additional complexities and challenges, including that of cultural and linguistic diversity.

Globally, linguistic diversity has become increasingly significant for HEIs given that student and staff mobility, information exchange, and international networks are on the rise (Darquennes, Plessis & Soler, 2020), and more so for the SA multilingual context. Institutional structures often privilege English and standardised professional communication, leading to a sense of exclusion among students whose home languages and communication styles are different. And the issue of Western linguistic norms are still pervasive in the South African HE space. Nonetheless, I found that the linguistic challenges cited by students and graduates, particularly when patients could not understand common languages like English or isiZulu, were overcome through various

adaptive strategies, including gesturing, visual aids, translation tools, and learning basic phrases in vernacular languages. Since communication is a fundamental medical skill, teaching communication skills to health professions students should evolve to incorporate the linguistic attributes to be able to engage with culturally and linguistically diverse patient populations (Ortega & Prada, 2020). A recent study into the language preferences for teaching and learning at the Mangosuthu University of Technology (MUT) found that students believed that being taught in English as well as their native language enhanced understanding of complex concepts when explained in their vernacular (Thembane & Zulu, 2023). It is also envisaged that if students were allowed to harness their entire linguistic repertoire, including their native languages, their engagement in the process of effective communication development could be further enhanced. This could be achieved in the form of a multilingual language policy at HEIs.

Interestingly, while academic educators believed that students were adequately prepared for multilingual contexts, clinical educators noted that students were not always receptive to verbal and non-verbal cues from patients and peers. This was a concerning finding for two reasons: it reflects the possible disconnect of academic educators from the realities and demands of the clinical workplace. Another concern is the lack of requisite verbal and nonverbal skills since effective communication development includes both verbal and nonverbal interpersonal communication such as eye contact and body language, which serve to illustrate empathy and sincerity (Murphy, 2022) and build trust between the patient and the student practitioner. Language has been reported as a significant barrier to effective healthcare delivery (Kemp et al., 2017) in SA because language learning in this context goes beyond mastering words, grammatical principles, and sentence structure; it also involves an understanding of the unique cultural norms, social systems, and cognitive processes linked to each dialect. Therefore, an understanding of these cultural-specific contexts alongside linguistic principles is essential for developing effective communication (Rai, 2021). Kim (2020) notes the need for language pedagogy in promoting intercultural communication in today's world, postulating that such pedagogies must extend beyond language and culture and take into account individual actions, mediating tools, and broader social contexts.

This gap was also evidenced in my study as students navigated through the multicultural healthcare spaces during their training. Cultural norms and social contexts did impact the development of effective communication skills among CT students. While academic and clinical educators strove to develop cultural sensitivity and tolerance in students, students reported that

they were not always equipped to handle cultural complexities, particularly issues around cultural conditioning, modesty, and gender effectively. Given the identified gap of suboptimal reception to non-verbal cues, this was expected, also since cultural differences between healthcare professionals and patients are a known barrier to communication (Haidet et al., 2002). Importantly, in the South African context, the acquisition of intercultural communication skills is highly relevant in a continuously changing environment and plays a significant role in enhancing graduate employability (Succi & Canovi, 2020). This finding seems to be common in SA, where it appears that cultural competency training and assessment are not adequately addressed nor emphasised in most medical education programmes (Matthews & Van Wyk, 2018; Matthews & Naidu, 2019) when compared to other clinical skills, resulting in inadequate preparation of health professional students and perpetuating the major obstacle of achieving social justice in the SA healthcare system.

The nuances of intercultural communication strategies, particularly in the complex linguistic, social, and professional South African context, may be demonstrated through role modelling. Role modelling emerged as a dominant influence on the development of effective communication in the clinical workplace, where students revealed mixed experiences. In my study, it was found that a role model would effectively guide professional communication in CT students through the complex clinical environment; this was important considering that the population was predominantly English second language-speaking students from previously disadvantaged groups, whose primary objective might have been to just complete their degree and begin earning a livelihood. In Bandura's social cognitive theory (Bandura, 1977), role modelling is a powerful method of imparting values, attitudes, and patterns of thought and behaviour. Given the challenges of a multicultural and multilingual clinical context as well as the demand for resilience and adaptability to progress, having a role model has been linked to developing higher levels of resilience (Halpin et al., 2017); here the authors suggest that students can observe, through a role model, how certain challenges or hardships were overcome and feel inspired to be resilient when facing challenges.

I found that students reflected almost entirely on the clinical educator as being a role model. While positive role modelling from senior technologists helped students develop necessary communication skills and interpersonal abilities, it was disconcerting to note the reports of negative experiences, like when encountering intimidating personalities, which potentially damaged student confidence and hindered open communication. My findings are similar to those

reported in a study with a similar context (Mclean, 2004) where medical students found inadequate role models due to the dynamics of the clinical environment. These reflections highlighted the substantial impact that educators' conduct had on student learning experiences, particularly in South Africa's diverse and somewhat challenging healthcare landscape and socioeconomic history, where there is a need for a culture of adaptability and support.

5.2.4 Adapting communication to contextual demands of professional practice

The final theme allowed insight into how CT students learnt to adapt their communication strategies to various clinical scenarios and workplace demands that they experienced; these included diverse audience understanding, emotional states, and contextual demands. As alluded to earlier, students in the health professions, by nature of their professional training, have several stressors, and CT students were exposed to academic and clinical stressors as well as heavy workloads and challenging clinical workplace contexts. The current literature highlights the challenges of engaging in clinical contexts, such as financial and psychological stress, social isolation, and an unbalanced study/life schedule (McDonald & Grant-Smith, 2020). Therefore, these sociocultural perspectives, as well as the interactions between individuals who are part of the context, must be considered when evaluating how skills, knowledge, and communication attributes are developed.

In my study, participants' feedback further highlighted the unique contextual challenges in SA, where adapting to both the clinical environment and language barriers, as discussed in Theme 1, impacted how effective communication skills were developed. While these challenges exist, the HPCSA, being the regulatory body for CT, stipulates the development of professional competencies and attributes that will prepare them to meet South Africa's multicultural and multilingual standards for practice, for which the effective communication GA is mandatory. These findings, in terms of the contextual challenges, were not surprising due to the aforementioned socio-economic, psychosocial, and preparation influences. However, the impact of the clinical environment itself could not be ignored. In addition to students' internal challenges, the clinical environment is often hierarchical and highly structured (Watling et al., 2021), as I discussed earlier, even though autonomy and independence are valued in medicine. This could lead students to feel like their ability to exercise personal agency is limited.

Nevertheless, some students did report experiencing a transformative shift through these challenges when they recognised their value as catalysts. These shifts were in part due to the support received in the clinical workplace and may be explained by the work of Evans (2007), who surmised that certain environments may encourage agency for the development of requisite knowledge and attributes, in this case, effective communication, as they are inherently social, rather than just being due to self-propelled autonomy. In my study, students reported difficulties in balancing multiple curricula (where certain clinical units imposed their own training programme in addition to that provided by the HEI), heavy workloads, exposure to unethical or exploitative work practices, and the simultaneous demands of being both students and employees. Similar findings were borne out in a recent study that reported on how life experience, socioeconomic factors, and personal attributes contributed to health professions students developing resilience and thereby being able to manage their personal and professional development in the clinical workplace (Chye et al., 2024). Indeed, students and graduates reported specific clinical scenarios and experiences that enabled them to develop more sophisticated communication approaches, emotional maturity, self-reflection, and resilience[15].

Adaptability in the clinical context is particularly important, as students are expected to read situational cues and sinuously modify their communication styles to build rapport and convey empathy with patients, even in the face of challenges. The evidence from my study suggests a link between the ability to adapt to contextual changes and achieving communication outcomes in the clinical workplace. Here participants' experiences highlighted the practical demands of clinical settings but also how these demands served as a driving force behind students' communication development, engendering a deeper sense of responsibility and a willingness to confront personal communication challenges. So, these findings strongly support the context-dependent, socially mediated, and contradiction-driven nature of learning, which forms the fundamental constructs of AT (Engeström, 2009).

Students thrived when they were able to adapt and develop innovative communication strategies like language learning, translation tools, and gesturing. In addition, when students and graduates

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[15] The World Health Organisation (WHO) declares that resilience, defined as the ability to adapt, recover, and thrive when facing obstacles, difficult situations, and adverse conditions, is the key factor in helping individuals navigate stress and adversity (Ungar, 2013).

acknowledged that mental preparedness could bolster their resilience in challenging clinical environments, they were able to adopt a proactive strategy for handling their difficult experiences. This has been reported in other studies within a similar context (Diehl, 2016; Rathiram et al., 2022). A study by Delaney et al. (2015) found that students in the health professions' initial descriptions of stressors, which resulted in poor communication, low confidence, and frustration, changed when they recognised and managed their learning challenges in the clinical learning environment. In concurrence, I found that students developed skills like effective communication, time management, and problem-solving, which enabled them to handle adversity and succeed both academically and in the clinical workplace. The AT (Engeström & Pyörälä, 2021) was useful in making sense of this contradiction since contradictions and challenges within an activity system, in this case, the clinical environment, serve as a driver for change and learning. So, these findings demonstrate how contextual demands shape and are shaped by the agency of the subject (student) within an activity system.

Invariably, this was not the case for all students in the study, as some continued to struggle with handling complex scenarios like communicating with severely ill patients with multiple comorbidities, even as graduates. My findings are supported by those of Jeffers et al. (2022), who explored how nursing students perceived their ability to communicate effectively, both verbally and nonverbally, when providing end-of-life care. In keeping with my study, the authors reported that nursing students experienced anxiety and discomfort when engaging in these conversations. Even though most medical schools in SA and abroad require mandatory communication training to handle such scenarios, these often emphasise interpersonal skills and simplified communication using medical jargon (Rathiram et al., 2022). Currently, there is no formal communications module in the CT curriculum, which may limit students' ability to develop essential communication skills required for their professional development, and, given the increasing emphasis on effective communication GA in clinical settings, this represents a potential gap in preparing students for real-world scenarios.

My study suggests a relationship between the culture of the clinical workplace and the achievement of communication outcomes. While a non-hierarchical and supportive clinical learning environment was conducive to developing the effective communication GA, academic and clinical educators reflected on factors that could hinder the development of such. These factors included students being used as a workforce to compensate for the resource-constrained SA healthcare system, training units restricting active student involvement only to observation,

and students' reluctance to take up learning opportunities. This was expected because, as pointed out by Watling et al. (2021), learning in the clinical workplace is meant to allow student healthcare practitioners to negotiate their engagement between workplace affordances and professional expectations of themselves so that they can take responsibility for their educational paths. Students' agency may be constrained when factors like cultural expectations and hierarchical workplace structures, as is evident in my study, prevail, leading to outcomes, in this case, effective communication, not being adequately developed. These findings are aligned with the AT (Engeström & Pyörälä, 2021), where there is a focus on the interaction between the individual and the community. South Africa's unique socio-cultural, political, and economic contextual challenges shape students' learning environments and consequently, the communication GA development. Both academic and clinical contexts involve multiple interacting activity systems, including students, educators, healthcare professionals, and patients. In my study the AT provided a structured lens to help me understand how students and new graduates transitioned from theoretical learning to clinical practice, the extent to which communication tools (e.g., preparation programmes, patient interactions) mediated learning, and what contradictions existed between participants' expectations, workplace realities, and formal teaching.

5.3 Study Recommendations

Based on the study's findings, several recommendations are suggested to address the gaps that were identified. These include the introduction of a compulsory communication module, the creation of a supportive learning environment to facilitate students' development of effective communication GA through feedback and mentoring, curricular revision, and incorporating reflection for educators and students.

5.3.1 Introduction of a compulsory communication module

Given that participants suggested that improved student preparation for clinical practice hinged on enhancing English language proficiency, they made recommendations to that effect. Graduates felt that the inclusion of other languages for communication in the clinical context was also important. This is supported by Madiba, who averred that while the socio-political history of

SA institutions (Madiba, 2010) was characterised by racial and linguistic divisions, promoting multilingualism in HE will drive transformation. He further bemoans the lack of established theoretical and practical models to implement multilingualism in the historically English-or-Afrikaans-dominated universities, as they operate under different micro-structural environments. With approximately 24,000 students and staff members from different language groupings, DUT also embodies such a micro-structural environment, and this may lead to many language-related challenges. One possible solution, which was piloted at UCT in the Faculty of Health Sciences, required students to learn either Afrikaans or isiXhosa as a compulsory subject to help them develop linguistic and cultural skills, during and after their study, which were specific to their profession. These courses were a success (Madiba, 2010). This consideration may be relevant for the DUT curriculum planning, as I averred earlier, where a multilingual language policy and the compulsory inclusion of English and isiZulu could significantly enhance students' language proficiency. This initiative would improve communication and inclusivity, equipping students with the linguistic tools needed to traverse the diverse professional and social SA contexts more effectively. On the point of linguist tools, the concern of poor written skills has permeated across the themes and should be responded to using focused writing development practices and by providing structured writing frameworks to assist students in understanding the mechanics of good writing (Du Preez & Fossey, 2012). Educators should also be trained and supported in writing scaffolding techniques, formative feedback, and error correction as a starting point.

5.3.2 Clinical training units: Creation of a conducive clinical learning environment to support students' development of effective communication GA through feedback and mentoring

Previous work supports that the cultural values and attitudes of mentors, peers, and patients influence the quality of student health professionals' clinical experiences (Van Wyk et al., 2016) and therefore their development of clinical outcomes. In my study, students perceived the role of mentorship and supportive interprofessional dynamics in developing communication skills as an important one. This could be achieved when the learning environment is conducive and where qualified staff actively contribute, collaboratively, to the professional development of these students through positive role modelling. This has been established by other researchers who deemed positive role modelling, as well as a conducive learning environment, as an especially

important tool for communication skills transfer, particularly for young, impressionable students (Heaven, Clegg & Maguire, 2006). Given the global movement for curriculum reform, the dynamic HE spaces, and evolving clinical contextual demands, the identification of role models thus becomes a necessity to support student CTs in achieving their communication goals. This can be in the form of a supervisor, a senior member of the healthcare team, or a peer in the form of mentoring. For example, as pointed out by Msila (2012), mentoring can only be effective if there is synergy between the mentor and mentee and if the administration processes to support mentoring efforts are clearly outlined. Currently, this practice is not formally incorporated into the CT programme in DUT, and it is therefore recommended that mentoring be explored as a potential addition to enhance the programme's ability to facilitate student achievement of clinical communication outcomes.

Feedback, in the context of my study, has an important role in developing the effective communication GA in CT students, particularly since my study has highlighted such challenges like linguistic adaptation, cultural competence, and interpersonal communication in clinical settings. Structured feedback can directly address these challenges and improve students' communication skills, especially for learning in the clinical context; therefore, the curriculum should include an assessment design that integrates feedback into students' learning experiences. For feedback to be effective, feedback practices within clinical learning environments must recognise both the sociocultural factors that influence these practices and the individual as key components (Fuentes-Cimma et al., 2024). Therefore, clinical and academic educators and students need to understand receiving and giving feedback as an integrated experience and be guided accordingly since there needs to be synergy between the actions of the participants, the elements of the feedback design, and the available resources (Esterhazy & Damşa, 2019).

5.3.3 Curriculum revision

At the undergraduate level, the curriculum content and focus should be re-evaluated to equip students to better handle the demands, complexities, and uncertainties they will face during clinical training. The participants provided valuable insight into what they believed should be

included in the curriculum, namely the inclusion of soft skill development, the introduction of basic communication and psychology modules, and the integration of community and social outreach initiatives to expose students to diverse settings. The inclusion of these, for example, a structured communications module, has been associated with better communication outcomes in other health science professions (Heaven, Clegg & Maguire, 2006). Additionally, the inclusion of cultural diversity as a critical soft skill will equip our students to adapt to our interconnected world, bridge cultural divides, and cultivate inclusive environments (Adonis & Silinda, 2021; Plastow & Bester, 2020) in the clinical workplace. In addition, the incorporation of the psychology modules will be an investment into ensuring that CT students develop competence in end-of-life communication before entering the workforce as independent practitioners, as has been recommended by other studies on health science students (Jeffers et al., 2022).

As opined by Luckett (2001), to develop an epistemologically diverse curriculum, it is important to determine the nature and level of the knowledge and cognitive skills relevant to various professional categories and adjust the curriculum accordingly. Other authors have advocated for cultural reform of the HE curriculum to shape an institution's cultural practices, values, and behaviours (Adonis & Silinda, 2021) and thereby percolate down to the students (Blignaut & Koopman, 2020). This is particularly relevant to my work since an important finding was the misalignment of expectations for communication between the clinical workplace and the HEI. An alignment of the delivery and assessment of the effective communication GA across all levels should be negotiated between clinical and academic educators and made explicit to students (Wong et al., 2022). This approach would allow the formation and understanding of GAs, specifically effective communication, as well as the expectations and roles of different stakeholders. A round-table discussion engaging all stakeholders and collaborative inputs into the strategies for effective communication development would facilitate this understanding, establish the requisite communication skills relevant to the different CT categories, and ensure that the curriculum aligns with industry standards and expectations. This collaborative approach will permit interdisciplinary understanding and ensure that the curriculum remains relevant. This will, in turn, strengthen students' professional identity, improve educational outcomes, and prepare graduates to meet the demands of the CT profession.

Finally, the inclusion of structured learning opportunities in the curriculum which integrates cultural awareness, language diversity, and inclusive communication strategies is recommended to ensure that graduates are well-prepared for the contextual realities of clinical practice which were

highlighted in my study.

5.3.4 Incorporating reflection for educators and students

Kolb's Experiential Learning Theory from 1984 (Kolb, Boyatzis & Mainemelis, 2014) emphasises the importance of concrete experiences and reflective observation in skill acquisition. Reflection on professional experience is becoming widely recognised as another key attribute of healthcare practitioners, with evidence suggesting that it positively impacts performance. In my study, while student participants did not place great value on reflection, the importance and lack of this practice were highlighted by both academic and clinical educators, likely due to participants not being aware of the process and value of reflection. These findings are in concert with those of Muir (2009), who reported that both students and their educators showed gaps in their understanding of how reflection worked as a learning process. Therefore, a recommendation is for the inclusion of reflection as a formal learning activity for both students and educators. For students, reflection is a recognised learning experience that has the potential to bolster student achievement of outcomes since clinical experience, by itself, does not enable learning. Reflection on the student's part entails the identification of potential knowledge gaps through, for example, reflective portfolios, and these are then addressed as learning goals (Schaepkens, Veen & de la Croix, 2022).

For educators to be responsive to the demands of the SA context for inclusive education, as well as to optimise the learning experiences of students and to move from a deficit-orientated perspective to one that celebrates diversity, they need to adopt ongoing professional reflection strategies (Colomer et al., 2020). This means that they should critically examine their pedagogical practices to challenge any preconceived notions about student capabilities and design learning experiences which are flexible and responsive to the varied needs of all students.

5.4 Implications for Continuing Research

While my study is the first such study in the CT profession on this phenomenon in SA, these findings may be extrapolatable to other qualifications with a similar curriculum model and clinical placement component. It will be useful to explore whether similar concerns and experiences are

shared by educators, students, and graduates from other historically disadvantaged universities and historically privileged universities in SA. Additionally, a future study could focus on examining the strategies employed to develop resilience in the clinical workplace, particularly through examining how clinical engagement is delivered in other healthcare professionals' curricula to understand how challenges can be addressed in the clinical workplace, as well as how to develop professional resilience in student health professionals.

Another avenue for continuing research would be to consider community-based participatory research (CBPR) for achieving a common conceptualisation and buy-in for the effective communication GA. According to Wood (2014), the needs and perspectives of participants are considered because the research is conducted by and for participants and not *just on* participants. In the context of my study, CBPAR remains a valuable approach, as it would position students as active co-researchers who engage in a cyclical process of reflection, dialogue, and iterative learning to enhance their communication skills. Through student involvement in participatory research, academic and clinical educators can identify communication challenges that are context-specific, explore strategies for improvement, and co-develop interventions to address the linguistic, cultural, and interpersonal complexities in clinical practice, which my study identified.

Other areas of research could be focused on the impact of formal mentoring programmes on the development of this GA to ascertain the benefits that CT and other students in the health professions could derive from a mentoring relationship, particularly in the SA context. Another future work from this study will be to share the analysis of the students' perceptions of the changes made to the curriculum in response to these findings.

5.5 Strengths and Limitations

Through this study, I have gained an understanding of the perceptions and experiences of my study participants about the effective communication GA development in CT; this study proposes meaningful strategies to enhance the conceptualisation and development of the effective communication GA amongst all stakeholders. The institution's past and current politics, diverse student population, and staff profile provided a unique and interesting teaching and learning environment to examine this phenomenon, as students and educators brought with them a wealth

of complex experiences and histories which influenced how they perceived, experienced, and understood the learning environment.

Furthermore, through the interviews and discussions, increased awareness of this GA for participants, by referencing it with the expected outcomes as outlined in the DUT standards document, was achieved; this awareness could serve to enable new graduates' agency to make independent decisions about their careers (de Feijter et al., 2011) in terms of effective communication.

While this study has generated insight into effective communication development in CT, it has a few shortcomings. I acknowledge that, while certain methodological decisions were made with justification, they did limit the study in some respects. I acknowledge that recruitment bias is a potential concern in purposive sampling, particularly in qualitative research where participants are selected for their ability to provide rich, relevant insights. To mitigate recruitment bias, participants were drawn from diverse year levels (4th year and newly qualified) and departments (drawn from 17 clinical training sites), and by design, the study included participants with varied academic and clinical experiences. Additionally, recruitment of students was conducted through open invitations and classroom-wide announcements rather than personal targeting, reducing the likelihood of overrepresentation of particularly motivated or high-performing individuals.

It is argued that focus groups are reflexive and empowering experiences for participants, as the moderator promoted the sharing of views and experiences through group discussions. However, since the FGDs in this study were conducted on a virtual platform, some advantages of this methodology may be lost since human and non-verbal interaction may be reduced in online environments (Moore, McKee & McLoughlin, 2015). Notwithstanding this, it has been established that online focus groups can bring together individuals who are geographically distant from each other, which is particularly valuable for this study, as our participants were located around the country and therefore facilitated greater participation (Williams et al., 2012). In addition, the online platform offered privacy, a secure and private internet link to the meeting, and the practical advantage of minimising costly and onerous transcription.

Finally, I found it difficult to separate specific personal and contextual factors that enabled or hindered the development of effective communication, as they interacted with one another at different levels to influence the phenomenon; students faced different personal experiences and contextual factors that may have hindered or abetted effective communication development at

different stages of their undergraduate journey.

5.6 Reflections

This study was the culmination of years of inquiry and learning in Clinical Technology, which I was thrust into as a clinical trainer soon after I qualified. This later expanded into a keen interest in HE discourses when I entered the formal university space as an academic. As a researcher in clinical medicine and ensconced within the positivist paradigm, my experience and inquiry led me to the realisation of the pitfalls of this approach when interacting with my students and trying to understand their unique challenges to learning in my classroom. This directed me to re-evaluate my perceptions about qualitative research approaches and resulted in subjecting myself to the process of unlearning and relearning, which culminated in this journey through the MPhil qualification with a focus on qualitative research approaches.

The process of proposal development, of immersing myself in new ways of validated research techniques to study this phenomenon, was initially terrifying and frustrating, as I struggled to grasp the manifold aspects of qualitative research. But I found that as I continued through the data generation and the analysis, some findings reflected what I had experienced as a clinical supervisor myself and what I had observed in my classroom as a lecturer, which affirmed the value of my enquiry. Furthermore, this journey provided an internal glimpse into how the development of the effective communication GA was perceived and experienced by four interconnected stakeholders and, to some degree, challenged my own conceptions of what existed in the profession and CT education as the curriculum champion.

I constantly and consciously reminded myself to put away my own preconceived notions about how my study participants would perceive and experience the development of the effective communication GA and rather approach the participants' experiences with an open mind, to ‘see’ the phenomenon as it was experienced by participants and not as I expected it to be (Appendix 11). This took a great deal of effort, but I consider it as part of my development as a scholar in this research design.

Arising from the data, and during the comparative reflection, it seems I had underestimated the impact of the quality of clinical supervision on the development of the effective communication

GA. Currently, the programme offers an orientation and induction session, as well as study guides to all clinical educators on their roles and expectations. These findings indicate a need for more regular structured sessions with clinical educators to align curriculum goals with clinical practice expectations, including developing a common conceptualisation and expectation for GA development.

My assumptions about preparation for the clinical workplace were also disproven, as, despite a structured clinical practice preparation programme, participants still raised concerns about lack of preparation. The programme offering is clearly insufficient, as the preparation does not address the complex interpersonal issues in the various clinical contexts. In fact, after examining the data, I am now aware that the cultural barriers reported may not just necessarily be attributed to race or ethnicity, as initially assumed, but also age and organisational culture, which students need preparation for.

Regarding written communication, my initial assumption was that sessions with the Writing Centre and Library at DUT and timetabled academic writing class instruction would suffice to address students' writing skill development. However, this was not the case, as evidence from participants indicated persistent struggles with writing proficiency despite these support mechanisms. I now look ahead to adopting more participatory research approaches to involve students in conceptualising this GA and formulating strategies that are relevant to their needs and contexts to achieve the intended curricular outcomes.

5.7 Conclusion

This study aimed to explore the perceptions and experiences regarding the development of the effective communication graduate attribute (GA) from the perspectives of students, recent graduates, academic educators, and clinical educators at the Durban University of Technology. I undertook this study in response to an identified gap in the literature as well as the dearth of prior research examining this phenomenon within the context of the CT profession.
To answer the research questions: ‘How do final year students, new graduates, and educators perceive and experience the development of the effective communication GA in CT at DUT in preparation for the workplace?’ I present the following:
Through the findings, four key themes were developed: (T1) Effective Communication as a

Continuous Journey, (T2) Organisational Influences on EC Development, (T3) Navigating Cultural, Linguistic, and Interpersonal Dynamics, and (T4) Adapting Communication to Professional Practice, which helped me better understand how the effective communication GA was developed from the perspective of students, new graduates, and educators, which contested my initial assumptions about how this GA is developed through the curriculum. Firstly, the actual development of effective communication GA as perceived by participants diverges in some respects from the prescribed DUT standards document. Additionally, it appears that the extent of preparation for clinical practice, support in the clinical contexts, and language barriers hindered or supported the development of this GA. Notwithstanding this, I also show that students who were able to adapt to the various contextual difficulties were able to achieve their communication outcomes in the clinical workplace when the practical demands served as a driving force behind this development.

In addition, insights from the data show that there is a misalignment in the conceptualisation of the effective communication GA between students and clinical and academic educators, leading to challenges with every stakeholder: students reported inconsistent learning experiences across different clinical placements, and clinical educators utilised different supervisory practices and expressed frustration at having to spend extra time with students on communication development that they assumed students already had. Academic educators expressed strained relations with clinical partners due to differences in aligning outcomes with real-world requirements. The findings also indicate a need for the development of a multilingual language policy to enhance students' language proficiency, together with educator and student development in the use of linguistic tools needed to handle diverse professional and social contexts more effectively.

It is difficult to compare my results with the extant literature since no studies have been done in this profession; in addition, most previous studies on the health professions with a similar curriculum structure with clinical practice have been undertaken in developed countries where the social, political, and economic issues which afflict the SA context are not as all-pervasive and impactful on the student's learning environment. As the findings denote, CT students enter the clinical workplace with their own background capital, which is not uniform. They develop their professional attributes and identities through interaction with academic and clinical educators and in different contextual environments. It is therefore important to appreciate that when clinical workplaces are structured as educational spaces that provide positive role modelling, support agency, and students' attribute development, they become transformative settings where students can develop this effective communication GA.

In terms of the contribution of this research, it is noteworthy that this is the first study in which four groupings of participants in SA were interviewed in the CT programme to understand their experiences, conceptions, and perceptions of effective communication development. The findings will assist academic and clinical educators to better understand how effective communication is developed in their context. In addition, the study recommends evidence-based interventions to improve how the effective communication GA is developed in CT for the SA context and will make recommendations for a multilingual language policy to the institution (DUT). Implementation of these actions would be definite steps towards contributing to SA's educational transformation and social justice imperatives through more equitable and contextually responsive professional training.

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LIST OF APPENDICES

Appendix 1: Definitions, qualifiers and explanations related to graduate attributes

Qualifier	**Explanation**
Core Key Necessary Essential	The qualifiers core, key, necessary and essential convey the sense that these entities are requirements applicable to all people, irrespective of the level and nature of the work or other activities undertaken. These also appear to be the minimal standards that must be achieved.
Generic Transferable	The terms generic and transferable are associated with entities that are applicable across all areas of human activity and they can be learned in one context and applied in others.
Graduate	The term graduate is associated with universities and draws attention to those attributes that are associated with undergraduate studies.
Employment-related or workplace	The term employment-related suggests that the entities associated with this term are only of interest to individuals in relation to their work and to employers. Employment-related focuses mostly on an orientation to the current state of the labour market. These entities are often used to recruit workers and are required by workers to function effectively within organisational structures of knowledge-based enterprises.
Employability	The term employability carries a sense of an individual's long-term capacity to build a career and to prosper in a dynamic labour market. Employability signals qualities needed for success such as resourcefulness, adaptability and flexibility that applies also to other domains of life.

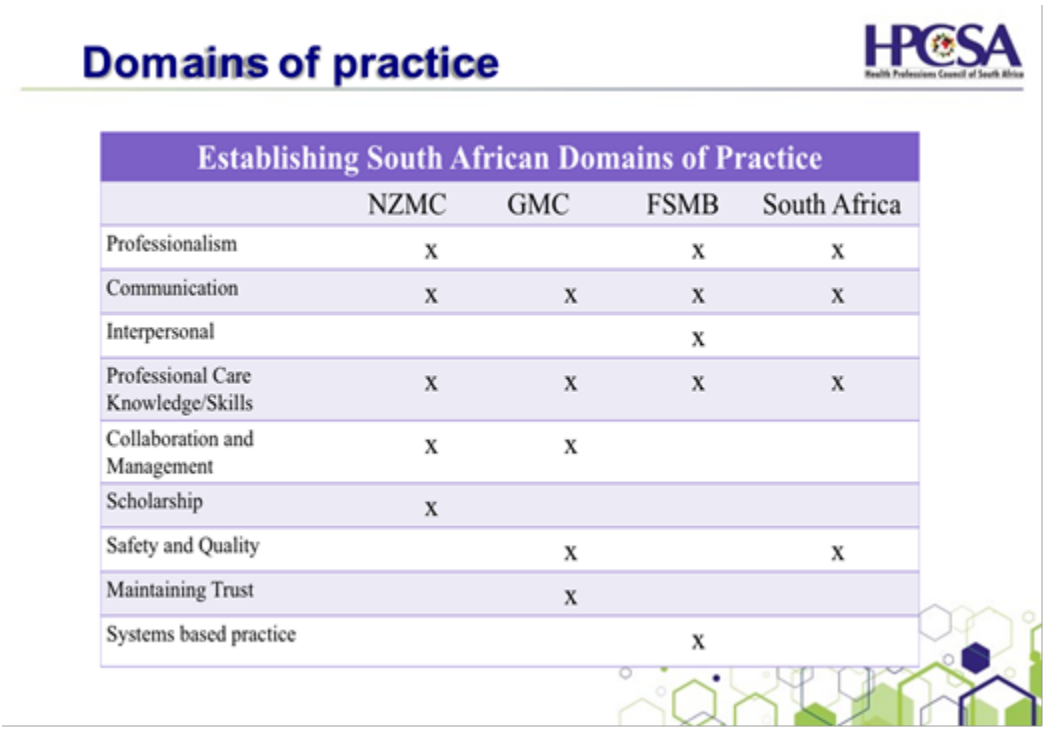
Lifelong learning	Lifelong learning relates to a person's willingness and ability to learn new skills throughout their lives and relates to adaptability and flexibility.
Skills	Although the word skill has been used in a very general sense to subsume all the descriptors listed here, it is commonly understood to refer to an ability to perform a specific task. In the context of the European Qualifications Framework (2008), the term "skill" means the ability to apply knowledge and use know-how to complete tasks and solve problems. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).
Competencies	The term "competency" refers to an observable behaviour, a skill that is performed to a specified level and therefore provides a basis for the assessment of performance. The term "competence" suggests that people have an underlying understanding that enables them to produce and evaluate workable responses to novel situations. The term "competence" is distinguished from a "competency". The term competency appears to be reductionist in a climate of rapid change and a degree of uncertainty about future requirements (Curtis & McKenzie, 2001). In the context of the European Qualifications Framework (2008), the term "competence" means the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. Competence is described, in the context of the European Qualifications Framework, as responsibility and autonomy.
Attributes Characteristics Qualities	Attributes, qualities and characteristics refer to capabilities of individuals. The term "characteristics" are also used to describe the requirements of a particular job.

(Bester, 2014)

Appendix 2: The ‘Big 5 at DUT’: the DUT standards document for graduate attributes

Attribute	Description
Critical and creative thinkers who work independently and collaboratively	Be effective problem solvers capable of applying logical, critical and creative thinking strategies.
Knowledgeable practitioners	Have an in-depth knowledge in their chosen field of study, and an ability to apply that knowledge in practice.
Effective communicators	Demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences.
Culturally, environmentally and socially aware within a local and global context:	Recognise the seminal cultural, environmental and social issues that have an impact on both their local context and globally. Be aware of the ethical implications of human behaviour.
Active and reflective learners	Take active, personal responsibility for their learning to enhance their professional and personal life and career development.

Appendix 3: Domains of Practice – Benchmarking exercise



Domains of practice

HPCSA

Establishing South African Domains of Practice				
	NZMC	GMC	FSMB	South Africa
Professionalism	x		x	x
Communication	x	x	x	x
Interpersonal			x	
Professional Care Knowledge/Skills	x	x	x	x
Collaboration and Management	x	x		
Scholarship	x			
Safety and Quality		x		x
Maintaining Trust		x		
Systems based practice			x	

NZMC: New Zealand Medical Council; GMC: General Medical Council; FSMB: Federal State Medical Board

Appendix 4: UCT HREC approval

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

Room 45 E-52-E-Floor- Old Main Building
Groote Schuur Hospital
Observatory 7925
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23 June 2024

HREC REF: 317/2024

Dr G Hendricks
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Dear Dr Hendricks

PROJECT TITLE: EXPLORING THE DEVELOPMENT OF THE EFFECTIVE COMMUNICATION GRADUATE ATTRIBUTE IN THE CLINICAL TECHNOLOGY PROGRAMME AT THE DURBAN UNIVERSITY OF TECHNOLOGY: STUDENT, GRADUATE, AND EDUCATOR PERCEPTIONS AND EXPERIENCES-
MPHIL IN HEALTH SCIENCE EDUCATION-DR ROSALEY PRAKASCHANDRA

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee (HREC) for review.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 June 2025.

Please submit a progress form, using the standardised Annual Report Form (FHS016) or FHS017 if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed within the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

The HREC acknowledge that the student: Dr Rosaley Prakaschandra will also be involved in this study.

Please quote HREC REF 317/2024 in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval, where necessary, before the research may occur.

Yours sincerely

SPESSOR M BLOCKMAN
HAIRPERSON, FACULTY OF HEALTH SCIENCES HUMAN RESEARCH ETHICS COMMITTEE

Federal Wide Assurance Number: FWA00001637. Institutional Review Board (IRB) number: IRB00001938 NHREC-registration number: REC-210208-007

HREC/ref 317.2024

Appendix 5: DUT gatekeeper approval

Directorate for Research and Postgraduate Support

3rd Floor, Open House, Steve Biko Campus
Durban University of Technology
P O Box 1334, Durban, 4000

T +27 373 2577
E Gatekeeper@dut.ac.za
W https://www.dut.ac.za/research-ps/

10 July 2024

Dr D R Prakaschandra
Department of Health Sciences Education
University of Cape Town

Dear Dr Prakaschandra

PERMISSION TO CONDUCT RESEARCH AT THE DUT

Your email correspondence in respect of the above refers. I am pleased to inform you that the Institutional Research and Innovation Committee (IRIC) has granted **Gatekeeper Permission** for you to conduct your research "Exploring the development of the effective communication graduate attribute in the Clinical Technology programme at the Durban University of Technology: Student, graduate, and educator perceptions and experiences" at the Durban University of Technology.

The DUT may impose any other condition it deems appropriate in the circumstances having regard to nature and extent of access to and use of information requested.

Upon completion of your research project, you are requested to share the summary of your key research findings.

Yours sincerely

_____
Dr F Akpa-Inyang
(for) Dr V Govender
Director (acting)
Research and Postgraduate Support

Appendix 6a: Letter of information to students

Title of the Research Study: **An exploration of the perceptions of educators, final year students and graduate Clinical Technologists on the effective communication graduate attribute development at the Durban University of Technology**

Principal Investigator/researcher: Dr D R Prakaschandra

Qualification: MPhil (UCT)

Co-Investigator/s/supervisor/s: Dr G Hendriks (PhD)

Dr L McNamee (PhD)

Brief Introduction and Purpose of the Study:

Good day student,

I am an academic in the department of Biomedical and Clinical Technology, who is engaging in an MPhil degree to explore the perceptions of final year students and graduate Clinical Technologists on the effective communication graduate attribute development at the Durban University of Technology.

Outline of procedure:

To do this, we will be collecting the information through interviews. Thank you for taking time to participate in this interview. This interview invites your views on your perceptions and understanding of the effective communication graduate attribute development in the Clinical Technology programme as you have experienced it.

I am interested in how you understand graduate attributes, with particular reference to the effective communication graduate attribute, what its value is in your development as a clinical technologist, and also to what extent the design and delivery of the curriculum allowed for you to develop this graduate attribute as specified in the course design. Finally, I would like to ascertain your feedback on what changes should be made to the curriculum to allow for this development.

Risks or Discomforts to the Participant: This study involves collection of information through semi-structured interviews and does not carry risk of research related injury.

Explain to the participant the reasons he/she may be withdraw from the Study: Participation is completely voluntary, and you may at any time withdraw from participation and no explanation will be required.

Benefits: The information that you will provide will be very valuable for us to review the existing curriculum, to address any potential gaps, and to make recommendations for review. The interview will be conducted on the MS Teams platform and will take approximately 40 minutes. I have included a sample of questions for you to peruse, that will be asked on the appointed day.

Remuneration: There will be no monetary remuneration or nor other incentives will be provided.

Costs of the study: There will be no cost to you as the participant.

Confidentiality:
Your identity will be known to the interviewer only. All participant identities will be anonymized with a participant number. Identifying details will be kept confidential and responses coded to ensure anonymity. If you consent to participate, your identity will be kept confidential. Your personal details will not be disclosed, and any data used in the final report will not be linked to you.

Results: Results will be shared with all participants who request this, however they will be published in a DHET-accredited journal. They will also be shared verbally at the bi-annual department advisory board.

Research-related Injury: None are anticipated, as data collection involves interviews.

Storage of all electronic and hard copies including tape recordings:

Data will be kept in a locked cupboard in the office of the principal investigator and supervisors, and stored for a maximum period of five years (Dept of Biomedical and Clinical Technology). Access to all data will only be available to the principal investigator in charge. All electronic data will be stored using a password protected system. Hard copies will be shredded five years post the study while electronic versions will be permanently deleted.

Persons to Contact in the Event of Any Problems or Queries:

Please contact the researcher Dr DR Prakaschandra at rosaleypra@dut.ac.za, or the Institutional Research Ethics Administrator on 031 373 2375. Complaints can be reported to the Director: Research and Postgraduate Support Dr L Linganiso on 031 373 2577 or researchdirector@dut.ac.za.

If you are willing to participate in this study, please carefully read the consent. If you accept participation, please sign the consent document. Alternatively, you may contact me per email at rosaleypra @dut.ac.za for a link to the consent document.

Kind Regards,

Dr DR Prakaschandra (PhD)

Approval No: 317/2024

Ethics approval obtained from: HREC (UCT)

HREC RESEARCH OFFICE CONTACT DETAILS	PRIMARY RESEARCHER NAME AND CONTACT DETAILS:	SUPERVISOR NAMES AND CONTACT DETAILS
Research Ethics Committee of the University of Cape Town, South Africa; contact Tel: +27 21 650 3002, Email: hrec-enquiries@uct.ac.za.	Dr Rosaley Prakaschandra Department of Biomedical and Clinical Technology Durban University of Technology rosaleypra@dut.ac.za	Dr G Hendricks (PhD) gaironeesa.hendricks@uct.ac.za Dr L McNamee (PhD) lakshini.mcnamee@uct.ac.za

Appendix 6b: Letter of information to educators

Title of the Research Study: Evaluating the development of effective communication, as a graduate attribute in the Clinical Technology programme at DUT: Student, graduate and educator perceptions.

Dear participant,

I am Dr Rosaley Prakaschandra, Senior Lecturer in the Department of Biomedical and Clinical Technology, at the Durban University of Technology. I am interested in how you understand graduate attributes, with particular reference to the effective communication graduate attribute, what its value is in the development of student clinical technologists into graduates, and also to what extent the design and delivery of the curriculum fosters this development as specified in the course design. Finally, I would like to ascertain your feedback on what changes should be made to the curriculum to allow for this development. I have included a sample of questions for you to peruse, that will be asked on the appointed day. There will be no monetary remuneration or nor other incentives will be provided, and there will be no cost to you as the participant.

If you agree to participate, I will send an invitation via email to you. You will be given an opportunity to ask questions or clarify your participation and after you sign the consent form (see below) I will then make an appointment with you via email at a convenient time for you, and then audio record your responses in an hour-long interview or focus group. The interviews and focus groups will be conducted on Teams or face-to-face. All recordings will be kept under password protection on my computer.

The information that you will provide will be very valuable for us to review the existing curriculum, to address any potential gaps, and to make recommendations for review. As a participant in the study, you will receive a full summary of the results. You will also be informed of the overall findings of the study. There will be no monetary remuneration or nor other incentives will be provided. There will be no cost to you as the participant.

Participation is completely voluntary, and you may at any time withdraw from participation and no explanation will be required.

Your identity will be known to the interviewer only. All participant identities will be anonymized with a participant number. Identifying details will be kept confidential and responses coded to ensure anonymity and any data used in the final report will not be linked to you. Data will be kept in a locked cupboard in my office and stored for a maximum period of five years after which hard copies will be shredded while electronic versions will be permanently deleted. Access to all data will only be available to the principal investigator in charge. All electronic data will be stored using a password protected system.

This proposal has received ethics clearance by the University of Cape Town's Human Research and Ethics Committee who's task it is to ensure that research participants are protected from any research-related harm. The research complies with the ethical codes of the Helsinki Declaration and the South African Good Clinical Practice Guidelines.

Please contact myself at rosaleypra@dut.ac.za, for further details, or my supervisors or the ethics administrator on the contact details below.

Thank you

Approval No: 317/2024

Ethics approval obtained from: HREC (UCT)

HREC RESEARCH OFFICE CONTACT DETAILS	PRIMARY RESEARCHER NAME AND CONTACT DETAILS:	SUPERVISOR NAMES AND CONTACT DETAILS
Research Ethics Committee of the University of Cape Town, South Africa; contact Tel: +27 21 650 3002, Email: hrec-enquiries@uct.ac.za.	Dr Rosaley Prakaschandra Department of Biomedical and Clinical Technology Durban University of Technology rosaleypra@dut.ac.za	Dr G Hendricks (PhD) gaironeesa.hendricks@uct.ac.za Dr L McNamee (PhD) lakshini.mcnamee@uct.ac.za

Appendix 7: Consent form

CONSENT

Statement of Agreement to Participate in the Research Study:

 I hereby confirm that I have been informed by the researcher, Dr DR Prakaschandra, about the nature, conduct, benefits and risks of this study
Research Ethics Clearance Number: _____,

 I have also received, read and understood the above written information (Participant Letter of Information) regarding the study.

 I am aware that the results of the study, including personal details regarding my sex, age, date of birth, initials will be anonymously processed into a study report.

 In view of the requirements of research, I agree that the data collected during this study can be processed in a computerised system by the researcher.

 I may, at any stage, without prejudice, withdraw my consent and participation in the study.

 I have had sufficient opportunity to ask questions and (of my own free will) declare myself prepared to participate in the study.

 I understand that significant new findings developed during the course of this research which may relate to my participation will be made available to me.

_____ _____ _____

FULL NAME OF PARTICIPANT DATE SIGNATURE OF PARTICIPANT

I, DR Prakaschandra herewith confirm that the above participant has been fully informed about the nature, conduct and risks of the study above.

_____ _____

FULL NAME OF RESEARCHER DATE SIGNATURE OF RESEARCHER

Appendix 8: Student Focus group Discussion Guide

Good morning students. Thank you very much for agreeing to participate in this study.

As outlined in the information sheet, the objective of this study is to explore the understanding and experiences of final year students and new graduates of the effective communication graduate attribute to be developed within the Clinical Technology programme.

1. What comes to your mind when I say 'graduate attribute'?
    a. What is the value of GAs in your development as Clinical Technologists.
2. An outcome of this GA is that you are able to demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences. Now, think of a situation where you had to present a complex argument to an audience: (prompt: think about your final presentation of your research project in 4th year.
    a. Tell us about this experience – what mode (oral, written); what resources did you use? Who were your audience?
    b. What would you change about your communication session if you had to do this again?
    c. Do you think that the communication skills, as they've been developed during the course of the programme, has prepared you sufficiently to practice as a Clinical Technologist?
3. Can you tell us if there was any collaboration in developing your communication skills?
    a. Who was involved; how did they contribute to your development of these communication skills?
    b. How did this development happen (context)– formal or informal? (influence of peers, teachers, other staff in clinical environment, etc)

4. What ethical issues do you think is relevant in the different modes of communication? Eg oral, written, digital (virtual, social media)?
    a. What do you think is the tolerance for plagiarism at DUT?
    b. What are the implications for students who engage in unethical conduct?

Appendix 9: Interview schedule for academic and clinical educators

Appendix 5: Interview guide: Educators

1. What do you understand by the term 'graduate attribute'? a. Ask probing questions about the value of GAs in the development of students into Clinical Technologists.

b. Tell us how you conceptualise GAs and their development in this course.

c. Tell us about how the development of these GAs are interwoven into your modules?

2. An outcome of this GA is that graduates are able to demonstrate proficiency in communicating and presenting complex arguments and ideas effectively in oral and written forms and to diverse audiences. Now, think of a situation where this would be most appropriately demonstrated (prompt: think about the final presentation of the research project in 4th year; community engagement projects; OSCE). a. Tell us about this experience – what mode (oral, written); Who was the audience?

b. Do you think that the communication skills, as they've been developed during the course of the programme, has prepared students sufficiently to practice as a Clinical Technologist? What about meeting the exit level outcomes for this attribute and for the course?

3. Can you tell us how this GA is developed in your modules? a. How do you harness collaboration in developing these skills?

b. Who was involved; how did they contribute to the development of these communication skills?

c. How did this development happen (context)– formal or informal? (influence of peers, teachers, other staff in clinical environment, etc)

4. What ethical issues do you think is relevant in the different modes of communication? Eg oral, written, digital (virtual, social media)? a. What do you think is the tolerance for plagiarism at DUT? What are the implications for students who engage in unethical conduct?

b. What are the common ethical infringements on communication that you have experienced?

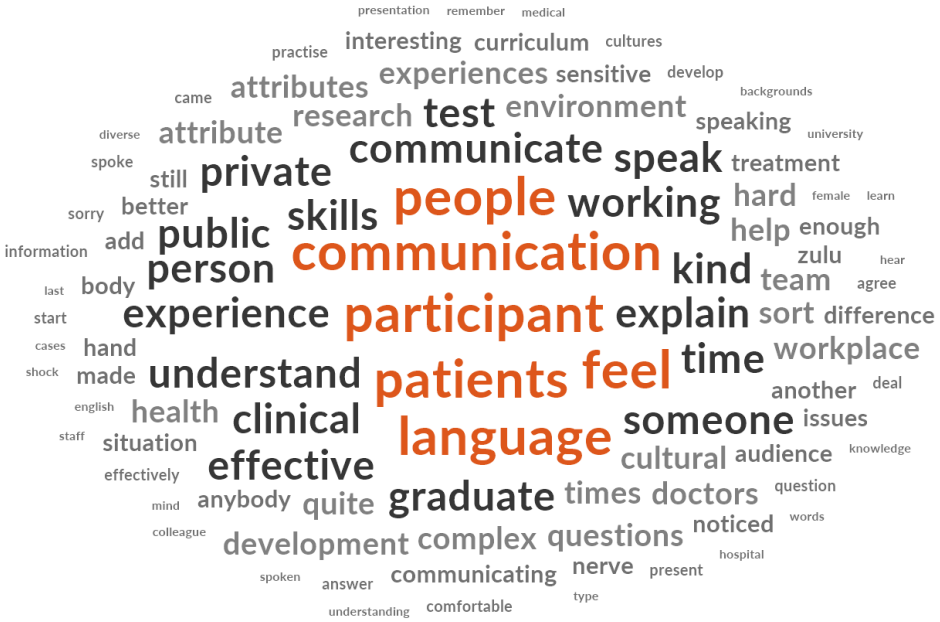
5. What recommendations would you make to improve the development of communication skills amongst students in the CT programme?

Appendix 10: Coding and broad categorisation during thematic analysis

Research Question:

RQ1: How do students perceive and experience the development of the effective communication GA in CT at DUT in preparation for the workplace?

Word cloud from the FGD



InVivo analysis and hierarchy of conceptual categories

Name	Case counts	Cat counts
Adapting communication to difficult situations	1	20
Student experiences of engaging in high-level EC activities	2	17
EC preparation for the clinical workplace	2	15
Navigating language diversity in the clinical workplace	2	12
Navigating cultural diversity in the clinical workplace	2	9
Clinical staff support in developing EC	2	7
Conceptualisation of GA	2	7
Development of EC in the curriculum	2	7
Real-world practice in EC	2	7
Development of EC in clinical workplace	2	6

Transformation in the development of EC	**2**	**5**
Communication experiences in private versus public institutions	**2**	**4**
Student reflections on EC development	**1**	**4**
Communication during teamwork	**1**	**2**
Feedback to students regarding EC	**1**	**2**
Patient-student interactions	**1**	**2**
Non-verbal communication	**1**	**1**
Student workload	**1**	**1**

Research Question:

RQ1: How do new graduates perceive and experience the development of the effective communication GA in CT at DUT in preparation for the workplace?

Word cloud from the group


independent
understanding
professionals
area
nonverbal
development
number
transition
background
learned
prepared
curriculum
academic
information
access
exposure
attributes
sensitive
life
presenting
communicating
qualities
unit
people
graduate
team
collaboration
training
experience
practise
sector
issues
cues
spoke
family
clinical
public
skills
practice
clinic
person
audience
degree
effective
feel
patients
language
hospitals
world
care
sisters
positive
diverse
difficult
participant
understand
lectures
daunting
critical
culture
complex
body
another
communication
cultural
tools
department
consent
helped
job
medical
research
hospital
student
speak
difference
attribute
doctors
learning
sample
afrikaans
emotions
presentation
experiences
health
reflect
outside
towards
order
treatment
procedures
communicate
assist
came
environment
backgrounds
government
based
multidisciplinary
young

InVivo analysis and hierarchy of conceptual categories

Name	Case counts	Cat counts
Transformation during the development of EC	4	10
Development of verbal communication	4	6
Emotions brought on by high-level communication activities	4	6
Challenges experienced in the clinical environment regarding EC	4	5
Dealing with difficult patients	3	5
Dealing with sensitive issues	3	5
Multidisciplinary collaboration in developing EC	3	5
Recommendations for enhancing EC in clinical environment	4	5
GA conceptualisation	4	4
Strategies for enhancing multilingualism	3	4
Introduction of language short courses	2	3
Multilingual challenges	2	3
Private-public institutional dynamics	2	3
Recognition of the value of EC	2	3

Student workload	**2**	**3**
Strategies for enhancing cultural sensitivity	**2**	**2**

Research Question:

RQ 2: How do academic educators perceive the development of the effective communication (EC) GA in CT at DUT in preparing students for the workplace?

Word cloud from the group

InVivo analysis and hierarchy of conceptual categories

Name	Case count	Cat Count
Future strategies for developing EC GA	4	17
Pedagogies for developing EC GA	4	15
Student development in the EC GA	4	13
Alignment between HEI and clinical environment	3	9
Student characteristics	4	9
Conceptualisation of GA	4	8
Written communication	3	8
Collaboration with industry partners	2	7
Development of cultural sensitivity	3	7
Effective communication by academic staff	4	7

Institutional support	2	5
Student participation	2	5
Rolemodelling	2	5
Development of the EC GA in the clinical environment	3	4
Feedback from clinical units	2	4
Self-reflection	3	4
Academic workload	2	4
Academic's experiences of developing EC GA	1	3
Adherence to assessment guidelines	2	3
Curriculum design	2	3
Assessment practices	2	3
Institutional culture	3	3
Multilingualism	2	3

Student workload	3	3
Transition to clinical environment	2	3
Contextual influences on student development	1	2
Integration of multiple skills	2	2
Student preparation for clinical environment	2	2
Student receiving feedback	1	1

Research Question:

RQ2: How do clinical educators perceive the development of the effective communication (EC) GA in CT at DUT in preparing students for the workplace?

Word cloud from the group

InVivo analysis and hierarchy of conceptual categories

Name	Case count	Cat Count
Recommendations to HEI for enhancing EC in the clinical context	6	24
Role of multidisciplinary team in developing EC in clinical workplace	6	15
Examples of demonstration of poor communication in clinical workplace	4	14
Development of EC in clinical workplace	4	14
Barriers to EC in the clinical workplace	4	13
Patient interaction skills	5	12
Adapting to multilingual clinical workplace contexts	6	9
Transformation in EC in clinical workplace	5	9
Student preparedness for EC in clinical workplace	3	9

Assessment of EC in clinical workplace	3	9
Impact of clinical learning environment on EC development	5	8
How students receive feedback in clinical workplace	5	8
Conceptualisation of GA	6	8
Cultural adaptions in the clinical workplace	5	7
Role of interpersonal relationships in developing EC	4	6
Training culture of clinical working environment in developing EC	3	4
Rolemodelling in the clinical workplace for EC development	2	4
Clinical workplace expectations of students for EC	2	4
Social background as a determinant of EC development	3	3
Impact of generational divide between students and clinical instructors on EC	2	3
Enablers for developing EC in the clinical workplace	2	2

Strategies for developing EC in clinical workplace	1	1
Alignment between HEI and clinical training units for EC development	1	1

Appendix 11: Extracts from my Reflective Journal

Before data collection

30 April 2024 reflection

I am worried that the Ethics approval process is taking too long…perhaps I am overthinking it, but I am really eager to begin this research. I have started with a draft on my literature review chapter – just to see if anything has changed since March 2024. I have discussed with my supervisors and they also feel that I should start putting the skeleton of the thesis together, to keep me motivated and engaged.

During data collection

28 June 2024 reflection

Full HREC approval was received! I am so relieved and super excited to begin the data collection, I posted my first research invitation on the 4th year MS Teams classroom page on 28 June 2024. I was contacted by my first participant two days later, so I was feeling very hopeful at this stage. I sent out email invitations to colleagues in the department, as academic educators. I also emailed invitations and information letters to clinical educators who were currently training. I await with bated breath for the positive responses. I am reading around strategies to remain objective while collecting the data, as I have a quite a few expectations on what the data is going to show, and I am trying to determine how I am going to put those preconceptions away in order to be able to appreciate the participants' experiences. A discussion about this with my supervisors allayed some consternation, because reading about phenomenology is one thing; applying it in real-life for the first time is something else.

15 July 2024 reflection

We were two weeks to university recess, and only three student participants and one new graduate. Students don't seem to be too interested in participating, although this research should be of concern to them. I have sent reminders to the clinical educators to participate. Only 1 person

has volunteered thus far. I was so relieved when all four academic educators agreed (2 in principle) to volunteer for the interview. I have no choice but to keep sending these gentle reminders. I also was so worried about the ethical implications of this, so I consulted my supervisors, and they suggested sending another invite to the class, making the importance of their participation more explicit. I did so, and by the time we were ready for recess, 12 students had volunteered for the focus group discussions; 5 new graduates and 4 clinical instructors. I have taken a course on using NVIVO software for thematic analysis.

31 July 2024 reflection

Focus group discussions were facilitated by Dr Penny Orten and were scheduled for the end of July 2024. Only a short discussion with her about the interview guide and the method to be followed was needed, as Penny is a seasoned researcher in qualitative methodologies.

I have also commenced with semi-structured interviews with the academic educators, and I was both shocked and saddened by some of the responses. I had to really restrain myself from encouraging them to talk about matters other than what was on the interview guide. What struck me was how differently this EC GA was understood by each of my colleagues, despite all of them being involved in the recurriculation process. What I really appreciated was their insight into how the socio-cultural aspects of students' lives impacted on their ability to develop this attribute. This made me appreciate, even more, the connection between culture, language and communication. It has taken me great effort to put away my preconceptions about certain aspects of the interviews. I think that this action has definitely helped me to tune in better with the participants' experiences and an appreciation of the contextual realities of those experiences. The struggle to encourage participants to talk but keep to the interview guide remains.

Now that the FGDs have been completed, I will begin the transcription soon. A total of 10 students actually attended the FGDs – the other two were on call during the FGD times. I just needed to contact the clinical educators again…The research process feels so daunting now…I feel torn by emotions by what has been divulged to me by my colleagues through the interviews and stressed by the low interest shown by clinical educators in participating. I am not sure if I am cut out for

such intensive qualitative research, also since I have to keep reminding myself that I am interviewing them as the researcher and not as a colleague. It was really difficult to extricate myself from some matters which I had experienced myself, so that constant reminder of my positionality did help somewhat. I did discuss this at the supervisor's check-in session, in addition to my impressions of the first reading of the transcripts from the academic educators…and that consultation also helped. I have also started sharing the transcripts, as well as the first iteration of manual codes with supervisors.

August 2024

It seems that the 'badgering' has worked – I have a total of 10 clinical educators who have volunteered…maybe because word has now spread about a certain interview that has taken place. I was not prepared for the responses from clinical educators on the research question – there was just such a variety of reactions and all as impassioned. Here again, I had to remind myself that I was interacting with them as a researcher and not as a colleague. Also, once again, the clinical educators were generally very generous with their responses, to the point of over-talking. The were a couple of them who used the opportunity to air their grievances against the department. It took much effort to stick the interview guide but also allow them space to air their feelings. I had to discuss with my supervisors about strategies of how to strike this delicate balance…and also how to not overly direct the discussion.

I have begun transcriptions and initial coding on the data from the clinical educators on NVivo. I have also begun checking the transcripts from the focus groups for accuracy. I have started to become deeply moved by some of the responses from the students and new graduates, as they reflected on their experiences. I had really assumed too much about the impact of the clinical context, including supervisors, on them developing this GA.

After data collection

September 2024

I have now completed data collection and there will likely be no further participants. I discussed the enrolment with my supervisors, and they advised that recruitment could stall. I am now beginning data analysis in earnest. I have been going through a rollercoaster of emotions – joy at the stories of students who prevailed and sadness and sometimes hopelessness - the thought of the curriculum that was supposed to be more responsive than the previous but falling so short of our expectations as curriculum champions. I have been discussing with my supervisors at every stage, sharing the transcripts and every aspect of the coding process, as a form of peer debriefing, and to acquire their input and guidance…and also to assure myself that I was not imagining things where they didn't exist. Here again, during this analysis process, I have had to keep being mindful of putting away my preconceptions, and seeing the data as was generated by the participants. I have made notes on the aspects where my assumptions had been dashed. I have started thinking about how to present my findings, as I have four participant groupings.