



Cape Peninsula
University of Technology

**A TECHNOLOGY-ENABLED INFORMATION-SHARING PLATFORM FOR
COLLABORATION AT AN INSTITUTION OF HIGHER LEARNING**

by

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DECLARATION

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ABSTRACT

This study explored technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning. It further looked at various information practices situations that resulted in information needs of academics that informed collaborations through information sharing amongst academics. The research findings outlined the need to achieve information needs which aimed at addressing the purposes that resulted to information sharing. The academics who participated in this research highlighted that their situations which were informed by their information practices included teaching, research, administration and community engagement.

Technology-enabled information-sharing platform was explored in detail through interviews. Typical situations currently taking place through technology-enabled platforms were identified and academics articulated their levels of engagement with these platforms and the type of information need they were trying to meet with them. This is because the study adopted the qualitative research method with an interpretive paradigm in achieving the objectives that this study sought to achieve. The study also highlighted the main barriers and challenges that impeded and influenced the experience of using technology-enabled information-sharing platforms by academics in their collaborative activities. The benefits were also highlighted as a motivation to using the identified platforms which facilitate collaboration amongst them.

Furthermore, the research sought to establish the various platforms that can be used by academics to enhance collaboration as they aim at achieving the mission of their institution. The conclusions and contributions drawn from this study would be used to extend the activities of information-sharing and collaboration amongst academics in the institution of higher learning being explored.

The study followed qualitative research that adopted interpretivism research philosophy. The findings of this research were drawn from twenty (20) participants from three of the four campuses of the selected institution of higher learning located in the Eastern Cape. Research findings established that increasing participation in information-sharing and collaboration amongst academics requires the provision of practical training on how to use platforms that the institutions use, to also share good practice by academics and to initiate dialogues with the institution in the case study regarding opportunities provided by these platforms for both personal and institutional gain. The findings of this research could not be generalized due to the sample size drawn for this research and the limitation to one institution make it impossible to generalized.

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DEDICATION

This thesis is dedicated to my sister, Phatheka, brother, Manelisi and my four children, Imani, Minala, Likhonkco and Inam, who have demonstrated remarkable patience and provided ongoing encouragement throughout my journey to earn this degree. May you continue to value the importance of what it means to be educated and committed to lifelong learning, posing questions, and growing intellectually and spiritually as you pursue goals and aspirations about which *you* are most passionate. And always remember that what we accomplish and what happens to us are not nearly as significant as who we become through those experiences.

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CLARIFICATION OF TERMS

Term	Definition
BLACKBOARD:	According to the official site of Blackboard Company, Blackboard is a software program that enhances virtual learning environments to keep pace with traditional learning and distance education programs.
COLLABORATION:	This is defined as a process that involves two or more parties working together towards achieving specific goals (Alhefeiti, 2018).
COMMUNITY OF PRACTICE (COP):	A group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis (Morley 2016).
INFORMATION-SHARING:	This is defined as an umbrella concept that covers a wide range of collaborative behaviours from sharing incidentally encountered information to collaborative query formulation and retrieval.
MICROSOFT TEAMS:	This is a cloud app digital hub that brings channels, conversations, meetings, files, and apps to Microsoft 365.
THEORETICAL FRAMEWORK:	Maiga (2017) concurs with Swanson and Chermark (2013) when they say that theoretical framework introduces and describes the theory by explaining why the research problem under study exists. Moreover, the theoretical framework connects the researcher to existing knowledge.
WHATSAPP:	Igbafe and Anyanwu (2018) state that “WhatsApp is an educational tool and advocate that institutions and lecturers tap into the functional benefits of WhatsApp as a strategy to enhance students’ academic performance”.

CHAPTER 1: INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

This chapter provides a brief background to the study. The research problem of the study, the aim, and the objectives and the motivation of the study are highlighted. This chapter also provides an overview of the research methodology, the limitations and an outline of the study. The institution of higher learning where this research will be taking place is structured into a multicampus institution in which academics residing in these different campuses have to collaborate on their common course content.

Therefore, this study explores technology-enabled information-sharing platforms for collaboration amongst the academics of the institution of higher learning in question.

1.2 Background to the problem

Anasi, Akpan and Adedokun (2014) report that the most common platforms used in collaborative information-sharing include email, electronic conferencing, web forums, Wikis, mobile phones, intercom, Skype, web blogs, professional list serves, web chat rooms, social networking sites (including Flickr, LinkedIn, Facebook, and Twitter) and so on. They further state that technology-enabled information-sharing platforms are informed by the desire of the users to exploit and tap into the benefits that these platforms provide, and that the fourth industrial revolution requires the use of digital platforms to enhance the sharing of information so that collaborations among academics can be possible and that institutional goals can be achieved.

This study explores technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning.

Arshad and Akram (2018) state that using social media tools helps in the development of a collaborating learning environment that is informed by the social constructivist paradigm. Technology-enabled information-sharing platforms are important in the promotion of collaboration amongst academics in their different areas of interest.

This means that social media platforms, as examples of information-sharing platforms, are the focus of this research. These platforms facilitate the sharing of information, thus impacting on collaboration among the members of the academic community of the institution of higher learning under investigation.

According to Arshad and Akram (2018) recent studies on technology-enabled information-sharing platforms in institutions of higher learning reveal how these impact on student achievement. These platforms enable the researchers and the students alike to collaborate on their topics of importance and to share information for learning purposes. They further claim that the use of technology-enabled information-sharing platforms has been extended from being used for communication to enable the sharing of academic content, and that the benefits of using these platforms are realised beyond traditional forms of communication.

Pharm and Williamson (2018) posit that when they posit that the continued technological developments and educational applications, coupled with the increase in the use of mobile devices, impact on how collaboration and information-sharing manifest.

1.3 Research problem statement

Arshad and Akram (2018) state that technology-enabled information-sharing platforms have revolutionised the way in which academics communicate and collaborate with their peers. The widespread use of these platforms has seen them being adopted by the institutions of higher learning as a means of sharing large volumes of information to enable collaboration amongst academics.

Research carried out by Khoro (2019) reveals that it is now economically feasible for professionals to collect and share information, knowledge, and ideas with colleagues in other departments and across different functions and in geographically different places using ICTs enabled platforms. They further explain that receiving information in social media platforms is very simple, reading the text, following the conversation thread, and responding as part of the community. This is done either in a direct response to a specific message or by starting a new conversation thread.

Based on the above, the problem statement for this study is: Despite the availability of technology-enabled information-sharing platforms like social media tools, as seen by the different scholars, it is not clear how academics at institutions of higher learning use such tools to enhance collaboration through information-sharing. Therefore, this study explores technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning.

1.4 Research questions

Table 1: Summary of research questions

Research problem		
Research Question 1 (RQ 1)	What technology-enabled information sharing platform do academics currently use to share information during their collaborations?	
Research sub-questions	Method	Objective
1.1 How do academics currently obtain information for their academic work for collaboration?	Literature review & Questionnaire through semi-structured interviews	To determine the ways in which information is shared among academics.
1.2 What are the different approaches used by academics for information-sharing at institutions of higher learning.?		To review different approaches used by academics for information-sharing at institutions of higher learning.
1.3 What barriers and challenges do academics experience in using technology-enabled information-sharing platforms at the institution of higher learning?		To determine the perceived barriers and challenges to using technology-enabled platforms for information-sharing.
Research Question 2 (RQ 2)	What technology-enabled information-sharing platforms are suitable for collaboration amongst academics at the institution of higher learning?	
Research sub-questions	Method	Objective
2.1 How can collaborative information-sharing improve academic performance?	Literature review & Questionnaire through semi-structured interviews	To determine the relationship between information-sharing and improvement of academic performance
2.2 What are the academics preferences for using technology to share information for collaborative work?		To recommend a technology-enabled information sharing platform for collaboration amongst academics.
2.3 How does the higher education institution promote a culture of information-sharing amongst academics?		To establish how the institution of higher learning promotes a culture of information-sharing amongst academics.

1.5 Aim of the study

This study aims to explore the use of a technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning.

1.6 The objectives of the study

The main aim of this research can be broken into the following objectives:

- To determine the ways in which information is shared among academics.
- To review different approaches used by academics for information-sharing at institutions of higher learning.
- To determine the perceived barriers and challenges to using technology-enabled platforms for information-sharing.

- To determine the relationship between information-sharing and improvement of academic performance.
- To establish how the institution of higher learning promotes a culture of information-sharing amongst academics.
- To recommend a technology-enabled information sharing platform for collaboration amongst academics.

1.7 Conceptual model of the study

Below is a proposed conceptual model for this study.

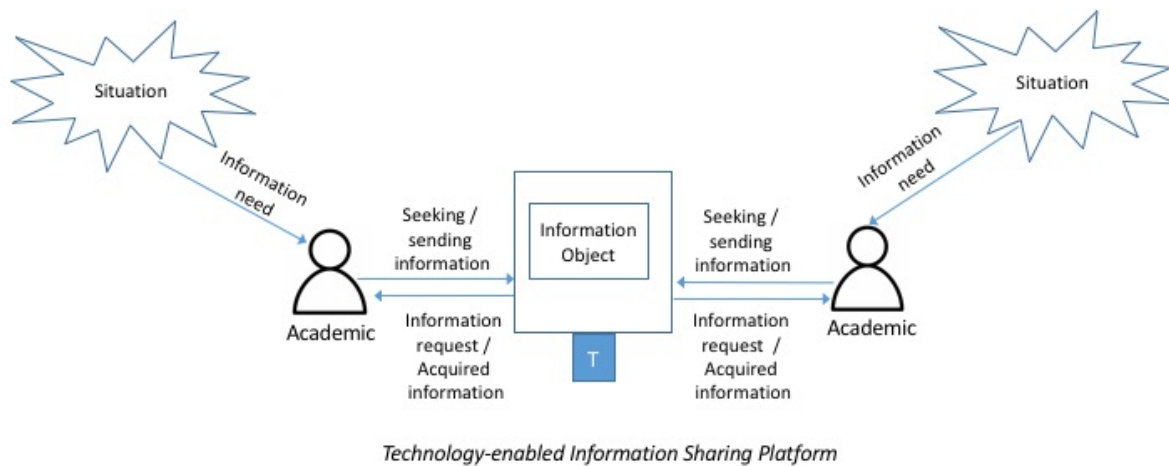


Figure 1: Conceptual Framework

1.8 Research methodology

South Africa in general experienced the challenges of Covid-19 pandemic which started in December 2019 in a town of Wuhan in China. When the first case of Covid-19 was identified, the President of the Republic of South Africa responded by calling all the citizens to practice social distance and to stay home. Due to an increase in the number of fatalities, the schools and institutions of higher learning were eventually closed. The closing of movements and schools resulted in this researcher changing his research methodology as conducting face-to-face interviews was not possible due to restrictions made.

The use of collaborative technologies, including Microsoft Teams was adopted to enable this research to see the light. Online interviews substituted the traditional face-to-face interviews characterized by having interviews taking place in a one room. Covid-19 really needed a change

in approach for data collection. This spread of Covid-19 added to the limitations of this study as the researcher had no control in changing data collection technique.

For this study, a single case was used. The adopted research methodology required that data be gathered from both primary and secondary sources. The primary source for the study was a series of interviews with academics who share information for collaboration using technology-enabled information-sharing platforms. The interviews with academics were conducted through Microsoft Teams due to the lockdown restrictions caused by the COVID-19 pandemic. The secondary source for this study was the literature review. A brief overview of the research methodology is presented below:

1.8.1 Research philosophy

Du Plooy-Cilliers, Davis and Benzuidenhout (2014) state that research paradigms provide researchers with a means of focusing on a specific phenomenon. The research is guided by aligning it to the selected paradigm. A paradigm determines the views, beliefs and ways in which researchers conduct their study as, guiding the type of data collected, and the analysis of the data. Each paradigm consists of an epistemological, ontological and axiological position and each of these positions will differ depending on the adopted paradigm. The research paradigm adopted for this study is interpretivism because it suits the nature of this problem focusing on the participant's sense-making of their information-sharing practices.

1.8.2 Ontological position

Ontology is the explicit specifications of the nature of reality (Saunders *et al.*, 2019). It can be assumed that there are existing patterns independent of the observer that can be discovered, in which case an objectivist stance is assumed. Alternatively, reality can be observed from a subjectivist stance, in which case the researcher interprets reality as experienced by humans.

This study was conducted with the assumption that there is limited perceived knowledge or understanding of the technology-enabled information-sharing platform that academics use to share information and collaborate amongst themselves in the institution of higher learning being studied.

1.8.3 Epistemological position

According to Du Plooy-Cilliers, Davis and Benzuidenhout (2014) epistemology deals with the nature of knowledge and how knowledge is created. It deals with how the knowledge is created from the researcher's interpretations of the data by the researcher .

This study was conducted with the view that a world is perceived based on the researcher's and participants' thoughts and perceptions. The problem was viewed from the perspective of academics who were the participants involved in the study and every effort was made to ensure that awareness of the research context was maintained. The study results are dependent on the contexts influencing the academics' views.

1.8.4 Research approach

Saunders *et al.* (2019) state that a deductive approach is a theory, whereas an inductive approach is generates a new theory that emerges from the data. They further indicate that an inductive approach is usually associated with research, using qualitative data while the deductive approach is generally associated with quantitative research.

Furthermore, Rossman *et al.* (2016) posit that it is exploratory research that seeks to explore new ideas, improve novel sights, and increase acquaintance related to a phenomenon. This view is developed further because they further opine that exploratory research enables handling of new or rarely researched problems, research conclusion and even for the existence of the problem.

Research methodology provides for the collection of data from the literature as well as from primary sources, which, in this study, are interviews administered through an interview guide. An inductive approach to the research was followed and the process of investigation was informed by the research problem.

Maiga (2017) states that in the qualitative research approach, collection, analysis and interpretation of the data collected from the interviews, the participants' observation, and document analysis are carried out to understand and describe the meanings, relationships, and patterns. The focus of the approach is on the construction of social and cultural meaning.

1.8.5 Research strategy

Mayekiso (2013) states that the research design considers the research questions, the aims, and the objectives of the research and maps out a clear plan for dealing with them as well as indicates the sources from which the data will be gathered. Furthermore, Mosha (2014) states that research design is needed to facilitate the process of conducting the research study to realise the goals of the study.

An exploratory case study focuses on "what" questions. In case study research the situation of the case is studied in a real-life context. The boundaries between the phenomenon and the

context in which the phenomenon is studied may not be clear. A single case study is the investigation of a single case in a specific real-life situation.

The phenomenon is investigated within the institution, across its different campuses located over a radius of 100km. Though the institution of higher learning investigated has four campuses, only three campuses took part in the study, due to COVID-19 lockdown restrictions.

1.9 Data collection

This study used semi-structured interviews to answer the research questions administered through an interview guide. The questions were aimed at achieving the stated objectives of exploring technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning. Academics within the Department of Accounting of various campuses of the institution of higher learning were interviewed.

Three heads of departments in three of the four campuses of the institution of higher learning, and 10 members of the academic staff, were interviewed through Microsoft Teams. There was no physical interaction during interviews, as the researcher observed the COVID-19 lockdown restrictions.

1.9.1 Sampling

Mosha (2013) defines the population as the unit being sampled, with location and population boundaries specified in advance. The population for this research study was made up of academics working in the departments of Accounting located on the three campuses of the institution of higher learning where the research took place. This is because the various departments of Accounting had agreed on a standard operating procedure (SOP), and the individual academics were required to comply with the stipulations and provisions of the SOP.

A purposive sampling technique, within the non-probability strategy, was used in this research study. This is because, as Manamela (2018) states, purposive sampling is about deciding beforehand about selecting specific types of people who 'are representative and who possess the characteristics required to achieve the study's research objectives. The academics in the departments of Accounting were sampled as part of the study.

1.9.2 Unit of analysis

The unit of analysis represents the focus of the study, and the unit of observation is the source for the data collection (Neuendorf, 2020). The unit of analysis was the technology-enabled information-sharing platform for collaboration amongst academics. Interviews were conducted to

achieve the aims and the objectives of the study. These interviews were administered through an interview guide. The unit of observation was the participants' use of technology-enabled information-sharing platforms for collaboration.

1.10 Data analysis

Data analysis involves categorising data looking for the occurrences of key concepts or recurring patterns, as part of a process to make sense of the data (Creswell, 2014). Raw data includes the data collected from the participants as well as notes of the researcher compiled by the researcher during the interview process. Data was coded and a thematic analysis was used in which the coded data was arranged into themes.

1.10.1 Transcribing

Many research studies collect data in audio as the verbal responses of the participants or video recordings, which then need to be transcribed into written text to analyse the data. Bailey (2008) further explains that transcription is an interpretive and repetitive process. The researcher listened and transcribed all the recordings obtained through Microsoft Teams used for conducting the interviews.

1.10.2 Coding

There are two major types of coding, namely manifest and latent coding (Saldaña, 2014). Manifest coding is a technique where the researcher counts the number of times a word or phrase is mentioned in the data. This process can be achieved with the help of computer software. Latent coding is where the researcher examines the text to gain insights into the underlying meaning of the text. An entire paragraph would be read to identify possible themes. This study adopted the latent approach to undertake the coding process.

1.10.3 Themes

One of the main objectives of qualitative data analysis is the task of identifying themes. The reviewed literature for the study was analysed by means of latent coding and subsequently, various themes were identified that became the theoretical key concepts (Saldaña, 2014). In terms of the empirical data, interview transcripts were analysed using a latent coding process to derive the findings.

1.10.4 Categories

The data from the transcript was grouped together into categories based on related codes to reduce the number of different pieces of data that had to be processed in the data analysis. All

similar categories were further grouped into themes of related categories were merged into themes. A record was kept of how many interviewees expressed the similar views.

1.11 Research ethical considerations

Neuman (2014) states that most ethical issues are based on the consideration of a balance between the quest for scientific knowledge and the rights of the subjects being studied. All participants involved were reminded of the research objectives and aims as well as their rights as participants of a scientific study. To avoid a conflict of interest between the researcher and the research participants, a proviso was added to the 'permission to do research document. The condition based on the ethical clearance granted as stipulated by the organisation was communicated to the participants. The one condition was that the organisation always remains anonymous.

The research was located on three campuses of the institution of higher learning in the case study. The aim and objectives of the research were presented to the organisation and formal permission was obtained from the Chief Information Officer (CIO) of the company before conducting the research. The organisation is referred to as the institution of higher learning to maintain anonymity. The following ethical principles were applied to the research (Neuman, 2014):

Informed consent: Before the interview, participants were given an information sheet explaining all ethical issues relevant to the study. They were thereafter presented with the consent forms. Participants were also reminded that they may change their minds to continue participation at any time, even if consent forms had already been signed.

No pressure on individuals to participate: No incentives were provided to persuade participants to participate.

Respect for individual autonomy: Throughout the interview, participants had the freedom to decide about their participation. Even though they signed consent forms their participation could be terminated at any stage, without giving any explanation.

Maintain anonymity and confidentiality: The identity of the organisation was anonymised. Any identifiable information of participants was anonymised as promised. The participants' identity and the link to their contributions were protected.

The study adhered to the Cape Peninsula University of Technology (CPUT) Code of Conduct throughout the research, and the promotion of all ethical procedures regarding confidentiality of

participants. The researcher obtained informed consent from research participants based on an explanation of the project. Participants were guaranteed anonymity. Participation in this research was voluntary and they were allowed to withdraw at any stage of the research process.

1.12 Research assumptions

According to Neuman (2014), research assumptions must exist in any form of research enquiry as it is regarded as the starting point of the research needed to build on theoretical explanation of the intended study. It is assumed that participants in this study will share their insights an experience of the platforms they use. This will further lead to the achievement of the aim and objectives that this study wants to achieve.

1.13 Delineation of the study

The research study was limited to the institution of higher learning that has campuses in Butterworth, East London, Mthatha and Queenstown in the Province of the Eastern Cape. An in-depth case study was used, though the results will not lead to generalisability, because of the scope of the study. The institution was selected because of its multicampus setting, in which academic staff members must collaborate on different issues that concern how they must operate, and thereby requiring the sharing of information to realise the achievement of the mission and vision of this institution. The research explored technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning.

The conceptual framework also provided for the purpose of information sharing which required that the academics involved indicated the need for information sharing. The section of the delimitations of the study provided a description of and linked the proposed conceptual framework to the delineation of the research to further provide more understanding of the collaboration taking place amongst academics in the identified institution of higher learning.

The proposed conceptual framework was informed by the nature of collaboration amongst the selected academics and the situations that necessitated the collaboration. In this research study, the situations being referred to are the information practices that the academics are involved in which are also linked to the academic roles that are expected of them as informed by their employment contracts. The academics in collegiality requested and were provided with the information by their peers to address their information needs. The academics involved in this research sought to meet their information needs as informed by their situations. This was necessary as determined by their information roles.

The conceptual framework provided for the information object in which the information was required and the technology used for the provision of such information. Information object is the third concept in the conceptual framework which required that academics indicate the aspect of information shared amongst them in both the content and form. This was necessary to explore the format and content and determine the prevalence of the information object being shared by the academics. Since the focus of this research was on technology-enabled information sharing platform amongst academics, the adopted conceptual framework provided for such platform and the approaches that academics used in their seeking or provision of information. It was also necessary that academics provide current information sharing platforms that they were using and those to be used for the future.

The participants interviewed were academic staff and three heads of departments from each Accounting Department of the three campuses of the institution of higher learning that participated in the study. The department of Accounting of this institution is selected because they have just adopted a standard operating procedure (SOP) that enforces collaboration amongst academics in this department because it requires that uniformity of doing things by academic staff teaching same subjects and located in different sites of this institution.

1.14 Contribution of research

There appears to be no specific study exploring technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning. This research attempts to fill this gap by conducting research utilising case studies that explores technology-enabled information-sharing platform at an institution of higher learning. Undertaking this study will be of value as it will increase the body of knowledge in the field of information-sharing and technology-enabled information-sharing platforms. Furthermore, this research study may have implications on the improved performance of academics and the culture of information-sharing when they use platforms to use shared information.

1.15 Chapter summary

This chapter deals with the aim of conducting the study. It also outlines the way data will be collected, analysed and why the chosen research method was selected. Furthermore, the choice of gathering instrument (interviews) and the sample are discussed and a detailed outline of the procedure has been provided. The next chapter will deal with the literature review relevant to the study.

1.16 Thesis chapter layout

Chapter 1: Introduction and background of the study

This chapter draws a comprehensive picture of the study as a whole and sets out the foundation for other chapters to follow. It provides information about the problem being investigated, aims and objectives, rationale and significance, research methodology to be used, definition of concepts, organisation of chapters, ethical considerations, and the research plan.

Chapter 2: Literature review

This chapter focuses on a literature study, which assists the researcher to establish whether the problem has already been researched or not, and/or the extent to which this has occurred. The researcher can acquaint themselves with the field of study and the research methodologies used in various similar studies. In this study, the researcher also reviewed the related literature to obtain background information about similar studies, and to gain insights concerning the research objectives.

Chapter 3: Research methodology

This chapter will detail the research methodology, research design, data collection and instruments to be used. It also provides the overview of the philosophical assumptions, paradigm, and research approach.

Chapter 4: Fieldwork

In this chapter, the main findings that emerge from interviews are reflected upon.

Chapter 5: Discussion

This chapter presents and discusses emerging themes from categories of data. The research findings are discussed in relation to literature and the research questions stated in Section 1.4.

Chapter 6: Conclusion and further research

This chapter is the final chapter of the research, which presents overview of conducted research, addressing of research and research sub-questions through provision of answers to them, reflection on the research journey (which includes challenges encountered by the researcher and how those were overcome), suggestions for further research and knowledge contributions.

CHAPTER 2: LITERATURE REVIEW

2.1 Introduction

According to McEwan (2017), the literature review is a comprehensive overview of similar studies to present the current theoretical arguments regarding some phenomenon or phenomena. In this study, the literature reviewed provides a carefully considered argument that posits a particular state of the concepts related to the study. This proposed current state of the issues related to the proposed study is based on the evidence provided within the sources included in the review. Literature reviews should be used to identify not only what research and theorising has already been conducted on a particular subject, but also what research has yet to be carried out as proposed by the authors as further research. In other words, literature reviews highlight both what the scholarly community knows about a subject and what it has yet to learn, with particular reference to the research gap the study aims to address.

The purpose of this chapter is to discuss the literature from various researchers whose results relate to the concepts for this study. It then looks at the various concepts that form topics of discussion that this research study aims to achieve. The purpose of the literature review is to establish the status of the aspects of the study as reported in academic publications and to derive the concepts relevant to the study, which in turn guide the design of the data collection instruments. Knowing the issues reported in the literature enables the researcher to focus on establishing the situation in the field with data collection.

The chapter is structured to first consider a community of practice around information-sharing followed by the person as the human actor sharing information in the work situation. Next, the information practice concepts relevant to the study based on the literature are discussed where each subsection is linked to a concept. The chapter is concluded with a proposed conceptual framework where the concepts and their relationships are depicted in a diagram.

2.2 Community of practice (COP) around collaborative information-sharing

The current research explores information sharing through collaboration and since the collaboration takes place amongst the academics who share expertise and belong to the same field of study, it is imperative that a discussion of the community of practice be central part of this study. This is because academics who are a community in this institution of higher learning belong to a group with the same interest and belong to the same information practices group collaborate on matters relating to their situations. Accordingly, this necessitates the discussion of community

of practice to support engagements and collaborative information sharing which forms central discussion and purview of this research.

A community of practice is a group of people who have a particular activity in common, and therefore have some common knowledge, a sense of community identity, and some element of overlapping values. Although communities of practice may enter into conflict with the formal settings of organisations, due to their high knowledge absorptive capacity, knowledge managers encourage their formation within their organisations to increase the level of innovation. Cultivating communities of practice in strategic areas is a practical way to manage knowledge as an asset, just as systematically as companies manage other critical assets (Bratianu, 2015).

The concept of a Community of Practice (CoP) is adopted in this research since it involves information-sharing amongst the community of academics, united by the same interests and desire to fulfil their information needs. The academics are involved in collaboration through various roles, which start from information consumers to information producers, determined by their roles in the information-sharing cycle.

2.2.1 Elements and dimensions of community of practice

Sanchez-Cardona, Sanches-Lugo and VZlez-Gonzalez (2012) state that communities of practice are organised around three elements, which are domain, community, and practice. 'Domain', in this case, refers to key issues or problems that are experienced by a group of people based on their work practices. Sanchez-Cardona *et al.* (2012) further claim that the domain creates a sense of accountability to a body of knowledge shared by the people in that group to the development of shared practices. 'Community' refers to the relationships and mutual commitment developed based on regular and continuous interactions between the group. This community of practice provides the environment for learning and practice of using frameworks, tools, information, styles, languages, stories, and documents that community members share (Sanchez-Cardona *et al.*, 2012). Valenti and Sutton (2020) include the additional elements of leadership, participation, sponsorship, and support in their seven-element version for social learning capabilities in communities. Communities of practice are social structures that connect diverse expertise, experiences, and knowledge, to provide an opportunity for the people within the group to gain new perspectives and to stimulate individual and collective learning. Participants in CoPs engage in both productive conversations and inquiries to promote learning and innovation.

Aljuwaiber (2016) also acknowledges that CoPs have three dimensions, which include mutual engagement, referring to the extent to which members interact with each other and who then form

their own relationships and culture – this results in shared practices. The second dimension is joint enterprise, which refers to a common purpose that connects people with each other when relationships are formed to work on an aligned interest. The CoP members negotiate a common understanding of what the joint enterprise means to them (Bitzer, 2010). The third dimension is the sharing of available resources, adding to the source base based on the outcome of the collaboration among the community members. The result of the sharing is that the community members develop over time with them able to perform better with their work. Resources available to the community include procedures, techniques, forms, stories, tools, and concepts.

In an academic community of practice knowledge, Aljuwaiber (2016) states that scientific and practical knowledge that expand all the time and are applied in all aspects of life and at all levels – which include individual, organisational and national. New knowledge is typically based on existing knowledge that can then be expanded into new knowledge. Knowledge is then used in practice to improve research practices; improve business performance and ultimately to gain a sustainable competitive advantage. He further argues that a communities of practice (CoPs) could be considered by organisations to encourage interactions among the community members to share knowledge and other resources as well as to learn from each other.

The academics involved in this research study are a community of professionals set up together to drive the mission of their institution through their involvement in teaching and learning and conducting research. The information needs of these academics require information-sharing and collaboration and their involvement in the community of professionals result in them establishing groups based on the same passions and the desire to meet institutional goals through sharing knowledge that results in the generation of new knowledge. The level of engagement amongst the academics follows the various dimensions, as alluded to by the scholar cited in the text. This is because the academics' information-sharing practices being explored are informed by their desire to achieve their common goals.

The challenges experienced by academics in higher education with regards to being part of a community of practice include when a structure is too formal; when the realised benefits are not the same as the anticipated benefits; and when the group purpose is ambiguous (Valenti & Sutton, 2020). They counter the challenges with the benefits of sharing ideas and content amongst academics. In an academic CoP where equity is considered as important, the academics have an opportunity to critique educational inequalities, support each other and, through sharing knowledge and practices, contribute towards social change that in turn could influence academic structures and the type of support and guidance that new academics need, depending on

structures to achieve conformity or to facilitate change that in turn could influence academic structures (Hakkola, Ruben, McDonnell, 2021).

2.2.2 Virtual Communities of Practice (VCoP)

Since this research explores technology-enabled information sharing platform, it is imperative to explore literature on virtual communities of practice (VCOP) to enhance the understanding of collaborative information sharing using collaborative technologies. The importance of this discussion is highlighted to fill the gap that might exist in literature and to further reveal that community of practice is not limited by time and space. Secondly, the collaborating academics belong to a group of expertise sharing common interests with the aim of achieving common goals.

According to Ogbamichael and Warden (2018), the concept of virtual communities of practice (VCoPs) originates from the need to create a new mode of learning and presents a specific form of knowledge development platform enabled by technology. Highly structured formal training programmes are not always be the best way to assist people to learn and solve problems, which then required that organisations seek alternative informal ways to share knowledge. The sharing of knowledge results in VCoPs receiving considerable attention while searching for new ways to draw on expertise dispersed across global operations.

The view of the academics as a community of practice can be intertwined through collaborative technologies, as the academics are located across geographical boundaries. Various collaborative technologies are in place to ensure that groups of people are combined in one place despite geographical boundaries and time limitations. The academics being investigated can be joined together using today's collaborative technologies to fulfil their information needs through collaboration.

2.2.3 Knowledge-sharing

Ogbamichael and Warden (2018) state that an advantage of VCoPs is the ability to allow innovative ways of creating and sharing organisational knowledge. Groups of experts in VCoPs function as an interdependent network with the shared goal of developing their practice and doing their work better and suggesting that VCoPs contribute to continuing professional development, improvement, and innovation, as well as communication over geographical distances that make other forms of communication impossible or impractical. The sharing of knowledge ultimately results in better practices, and this happens as part of their conversations about individual working practices (Jørgensen *et al.*, 2020) and this happens as part of their conversations about individual working practices. Furthermore, VCoPs are particularly useful in organisations facing the

challenge of disseminating organisational knowledge, to reside in some individual experts and are found to perform a central role in promoting collaboration between members who are dispersed by both time and space.

Virtual communities of practice (VCoPs) are relevant in this research, due to its nature of involving academics whose practices involve teaching, research, administration, and community engagement based on using a technology platform. The fact that these academics are in a geographically dispersed campuses renders the use of VCoPs imperative, in that members can collaborate at any time of the day and without the limitations of distance. The VCoP became even more relevant during the COVID-19 pandemic, when physical interaction has to be minimised.

Salleh, Yusof, Mohammed, Zahari and Hamzah (2020) state that sharing of useful knowledge, information and ideas provides many advantages and is undeniably increasing in popularity. This is because knowledge-sharing reduces miscommunication and improves understanding of procedures. It reduces production cycles, improves customer service quality, increases cooperation between departments and consolidates relationships within partnered departments or organisations, which then may contribute to the organisation's functionality and efficiency. Thus, all workforces, at every level, should contribute, participate, and share information to promote the success of any organisation. They also consider problem-based learning in their study as contributing towards the development of soft skills.

This research recognises that for knowledge to be shared effectively, individual academics should possess interpersonal skills to allow for purposeful knowledge-sharing to occur. It is imperative that communication and people skills should be used decisively to manage a positive climate amongst collaborating academics. The senior academics involved in knowledge-sharing should not administratively regulate the process, but it should be a process that comes out naturally when academics are involved in collegiality. It is imperative that knowledge-sharing should be dependent on an organisational culture that is supportive, and which allows for a positive climate and willingness to strive for betterment of the institution. The academics involved in the sharing of information have the opportunity of learning from each other, with the experienced academics imparting their knowledge to the novice academics. Hence, it is important that members involved should work with others and develop communication skills if the goals of the community are to be achieved through communities of practice (CoP) which inform collaboration.

Thus, knowledge-sharing should be used as a tool to enhance positive aspects of organisational phenomena and building optimism. In a community of practice, all members are equal, and people

working in the CoP are dynamic in terms of character and culture. Naturally, conflicts can still arise.

In further research, Jørgensen *et al.* (2020) affirm that a community of practice (CoP) is a powerful and widespread collaborative process that supports knowledge-sharing and the improvement of practices. It is also characterised by practice-related conversations and mutual exchange of practice-related knowledge, resulting in the development of a socially embedded shared practice. The way experienced academics communicate, engage, and share their assessment knowledge with new academics needs attention. The group of people who share a concern, a set of problems, or a passion about a topic, and who are willing to deepen their knowledge and expertise in a particular area by interacting with others in the group on an ongoing basis.

2.2.4 Information-sharing

Research carried out by Li, Grimshaw, Nielsen, Judd, Coyte and Graham (2009) reveals that communities of practice were originally developed to provide a template for examining the learning that happens among practitioners in a social environment. They further claim that CoPs had been used in the education and business sectors for more than two decades by 2009. The purpose of the community of practice is to enhance self-efficacy for the community involved in sharing of information. The different interpretations of CoP make it challenging to apply the concept or to take full advantage of the benefits that CoP groups may offer. The tension between satisfying an individual's needs for personal growth and empowerment vs the organisation's bottom line is perhaps the most contentious of the issues that make CoPs difficult to cultivate.

Forbes (2017) provides an overview of the uses of social media in teacher education. His case study considers the key processes in relation to professional online presence and learning networks, and further suggests issues and challenges that need to be considered when sharing information. In his study, the CoP was created with education students using Twitter accounts, following the information-sharing practices of the students, teachers, and educational authorities where they discuss educational issues with regard to professional practices. It is therefore important to consider the use of social media among academics.

Therefore, in social sciences research, the importance of group dynamics is emphasised. Forbes (2017) refers to a group when at least two people with the same purpose communicate with each other benefitting from each other's engagement. To be in a group, people should have common objectives and norms, and they should have a sense of belonging to experience themselves as part of the group. Groups, being dynamic, have the power to influence the work practices of

individuals and communities. The role within the group refers to the attitude and behaviour of individuals in accordance with the expectation of each other. Being part of a group implies that individuals within that group accept the conditions to abide by the rules of the group. The rules are based on shared values, attributes, and behaviours (Gencer, 2019).

Group structures that support and enhance a sense of belonging to improve the learning experience will contribute to better practices. Being part of a group in a supportive space provided by the CoP provides opportunities for persons to critique inequities and systems of power towards educational environment changes to address social justice aspects. Such groups are part of the organisations and cannot be excluded, because the best way to overcome problems is to work within groups. The affordances of communication platforms shape the quality of discussions taking place through technology-enabled platforms (Hakkola, Ruben, McDonnell, 2021).

The study balances what the literatures says about sharing information between information role-players set up in various collaborative arrangements, with what the participants of this research perceive as information-sharing informed by their having similar interests and by their belonging to the same department within their institution of higher learning.

2.2.1.1 Level 1: Informal groups

Daniel (2018) states that groups are important in an organisation and that in fact the entire organisation and its subunits are made up of groups of people who cooperate as part of their work. Both formal and informal groups exist in organisations and both have a particular role in the organisation. Therefore, an understanding of the nature of groups is important for managers and leaders to be able to influence the situated behaviour of people in the work environment. Managers and leaders must understand the role and impact of these groups. For example: formal groups are created to achieve specific organisational objectives, while informal groups emerge organically within the organisation based on the psychological and social needs of its members.

Li *et al.* (2009) refer to informal groups as groups that share information and develop new solutions for job-related problems. Typically, the sharing is not confined to the work environment. In such groups, people are drawn from different functional organisational areas (Cox, 2005). Informal groups may share information discovered outside the formal organisation channels about administrative actions, policies, processes, and standards that may influence their work. This would then lead to collective learning.

Furthermore, Daniel (2018) emphasises that awareness of management's intended actions, policies, processes, and standards enables employees to perform accordingly to meet their work

responsibilities. Informal groups may also assist management to share the workload. Managers are less inclined to check up on workers when they know these informal groups cooperate with them. In this sense management benefits from the informal group where they can trust the group, and delegate to them or transfer work tasks. Such an arrangement can lead to improved organisational performance and productivity

The idea of informal groups is important where members are not regulated, and the group is created unintentionally. Through their social interaction, academics form this type of group. The goals of the existence of this group are not pre-determined, but through their social interaction, information is shared. For the academics involved in informal groups, they can meet their individual needs through informal information-sharing. Furthermore, the same academics are developed, strengthened and their individual self-esteem is maintained through their participation in the groups. Being involved in a group of academics results in a status gain and increased sense of identity.

2.2.1.2 Supported groups

Information-sharing is an important activity that occurs daily on different levels: between many people, between many departments in organisations, between many organisations and even between many countries. This leads to considerable benefits for involved people, but can also lead to a negative outcome, for example, in the case of the sharing of sensitive information that is associated with digital citizenship (Sandoval, 2019). All these levels of information-sharing have specific factors that need to be taken into consideration. In the supported groups, people involved share information to achieve their intended goals that made them assemble the group. Information is shared routinely, and the groups are formally established. A supported group is sponsored by management to provide people with the opportunity to develop skills and to gain work-related knowledge (Li *et al.*, 2009).

At this level, information-sharing between academics takes place between groups whose existence is acknowledged by the supervisory management and their endeavour is supported. The academics involved in the group have their roles determined and the goals of the group are predetermined.

2.2.1.3 Level 3: Structured groups

Asci *et al.* (2015) indicate that humans are social beings and live as part of a group during their entire life. A group is a community consisting of one or more persons who interact with each other to achieve a specific goal. The groups are created either formally or informally within the

organisation at different times and for different purposes. These groups may have negative and positive influences on the organisation's structures and functions. In this work, the group concept in the organisations is studied and the influence of group behaviours within organisations is discussed conceptually.

A structured group is developed and managed by management to advance organisational strategies (Li *et al.*, 2009). In this case, the groups of academics involved in the sharing of information is regulated by the immediate supervisors of the academics. This means that the arrangement of a structured group is formal and is formed by the organisation and the limit of the subject to be discussed by the group is determined. The academics of the institution of higher learning in the current study are structured in groups according to the subjects or field of study. Each structured group is assigned a group coordinator who oversees the activities and the goals of the group.

Pham and Williamson (2018) claim that, as with information-sharing, there are competing terms such as co-operation and coordination. Whilst collaboration is gaining prominence in literature it is also a clearly distinguished term, due to the higher degree of commitment it has, and sharing of information, determination of roles and commitment of resources are observed as members engage with each other. The structured groups are informed of a formal and clear vision of leadership and long-term goals. Collaboration amongst group members is characterised by joint planning, co-thinking, co-creation and participation in the decision-making process.

2.3 Persons sharing information

This section of the study discusses various persons involved in information-sharing and collaboration using technology-enabled information-sharing platforms being explored in the study. This is achieved through discussion of roles played by various information professionals involved in the sharing of information and determined by various information needs. The research has established the information practices of these persons and the information needed to realise the goals of these practices.

2.3.1 Information roles (information producer, consumer, custodian)

De la Harpe (2020) reports that the roles of human actors involved in providing information services are the producers of information content, the information seeker and user, the designers of information systems, and the selectors of information relevant to the information service. It is important for the information service provider to provide useful information to their customers. This could present a risk when Information is not moderated and quality assessed, or information

is presented in a manner that does not facilitate easy use and understandability. This could potentially make the situation worse for the information seeker.

The current research investigates the behaviours of academics who are involved in information sharing to inform their collaboration. The information practices of academics to meet their information needs result in the determination of various roles that each academic is playing. For example, the academic requesting for information plays a role of being a consumer of information whilst the academic providing information on request is a producer of information. This research therefore outlines the various roles that each academic plays in the collaboration taking place as a result of information sharing.

De la Harpe (2020) suggests that in such cases additional information is needed to provide alternative options, including links to other sources, or guide the information user in assessing the value of the information. The service provider can use data produced by the system to determine user preferences, patterns of use, and trends, but most importantly to gain insights into the behaviour of the information seeker.

2.3.1.1 Information producer

The person who generates information is an information producer (Nicholas *et al.*, 2006; Ten Napel, 2017). De la Harpe (2020) indicates that in the case of an online service, the user is invisible to the service provider, it is then necessary for the information producer to assume the responsibility of determining the needs of the information seeker through other means. The information producer can consider feedback mechanisms. In that sense, the information producer as a cognitive actor also makes sense of the suitability of the information, as perceived on behalf of the invisible user. The information producer should act intentionally by continuously considering the information behaviour of the information users within the context of the service. In that case information is not regarded as a passive object. Therefore, we refer to this actor as the human sense-maker. By understanding the needs of the information users, their perplexities, fears, perceptions better quality information can be produced. In the case of underserved contexts, other considerations are also important such as literacy levels, socioeconomic status, lack of access to information, cost and technology, and infrastructural constraints, and the consideration of cultural sensitivity.

The academics in the current study act as both consumers and producers of information, due to the nature of their roles, which include teaching and research. In their research roles, academics gather information about a situation or problem and later produce information which becomes part

of the literature in their specific field of study. The information produced by academics adds value to a body of knowledge and hence academics become part of the knowledge generation. The institutions of higher learning are seen as the hub of information and hence the promotion of research is key to their functioning.

2.2.3.1 Information consumer

Napel (2017) states that information consumers turn the information into activities and decisions, which deliver value to the organisation. The persons using the information do something with the information, such as in discussion with others. He further claims that information producers are the people who prepare and interpret that information. This is an entire group of data professionals: business analysts, data analysts, information analysts, data scientists, data model designers, specialists in visualising information, ETL specialists, integration specialists and database specialists. Information producers supply information consumers with information and interpretations of that information.

The academics play the role of information consumer through using the material that has been produced by other authors. When conducting research, the academics use various sources by collecting information produced through research papers to produce research articles, as required by their institution. In collaboration, the seeking academic is the information consumer, as the requested information is used to achieve information needs required to perform their academic functions. The academics have information needs to fulfil their mandated functions of teaching, community engagement and research, and are involved in information-sharing and collaboration in which one academic request or another provides the requested information to the requester. This means that academics play the role of information consumers, as they use readily available information for task execution.

The end-user has increasingly over the years become the information consumer and could even be regarded as an information player. 'Player' is a term that recognises that today information seeking can be interactive, recreational, social, and competitive. Furthermore, it acknowledges the individuality characteristics of the information users and their online engagement activities (Nicholas *et al.*, 2006). Total access and the speed of delivery appear to be the consumer's key information needs. The Web, search engines, etc. make it possible for anyone and not only academics. Traditional quality concerns are no longer sufficient, which concern information professionals, who have traditionally played the role of quality guardians and are reluctant to let go of that role by providing suggestions of, for example, approved portals (Nicholas *et al.*, 2006).

2.2.3.2 Information custodian

According to Quadri (2012) libraries have to shift their role from the custodian of traditional information resources to the provider of service-oriented digital information resources. Increased use of and reliance on computer networks, the rapid growth of the Internet, and an explosion in the quality and quantity of information resulted in that library having to consider new means and methods for the storage, retrieval, and dissemination of information. In a more digital world information centers enable information exchanges, transfer and access, thereby establishing a network of information centers. This assists in resource development, resource sharing, and utilisation at various levels. Information professionals subscribe to e-journals, CDROM databases, online databases, web-based resources, and a variety of other electronic resources.

In his research, Quadri (2012) further reports that Library and Information Science (LIS) academic departments have to consider the increase of the globalisation of higher education, as well as that of the LIS workplace. This includes the extension of competition beyond traditional, institutional, national, and regional boundaries. ICTs can assist with the achievement of LIS educational goals/objectives and enable the work tasks of LIS schools. This means that there is a need to understand the potential infusion of ICT knowledge and skills into LIS course content, as well as infusing ICT competencies into the LIS professionals' work practices.

Quadri (2012) asserts that the new information environment requires that academics have communication and information literacy skills that will enable them to sift and extract relevant information from the repositories of the institution. It is also imperative that academics should undergo additional training to augment traditional skills and knowledge bases. The current study requires the need for examination of the various roles to establish the role of different players in the production, storage, and distribution of information resources to meet various information needs. The basis of this is informed by the roles that academics ought to fulfill, as mandated by their contractual obligations.

2.3.2 Information actor roles (academics)

According to Houston, Meyer and Paewai. (2006) academic staff carry out complex work in an increasingly demanding environment and are part of the only organisations focused on dual-core functions of knowledge creation and knowledge transmission through the processes of research and teaching. The work life of university academic staff is predominantly framed and shaped by commitments to and performing in the functions of teaching and learning, conducting research,

performing administrative tasks in line with their academic duties and community engagement (Kyvik, 2013).

Houston *et al.* (2006) further claim that there is an interdependence between teaching and research which causes ongoing tensions between the two in terms of demands on time and variable recognition and rewards. This notion of a tension between teaching and research is supported by Geschwind and Broström (2015). Whilst teaching is the core function of an academic, the current nature of institution demands involvement in community outreach and research to produce new information.

In their research article, Van Eeden, Eloff and Dippenaar (2021) present a trend analysis of directions, nuances, and theoretical developments of community engagement (CE) practices in higher education and training (HET) in South Africa. Their article focuses on the nexus of research, teaching and learning, and community engagement. They present specific associations of CE with core HET activities since such an integrated approach could potentially lead to a positive change. Research involving community engagement (CE) provides an opportunity for researchers, educators, and students, as well as communities, to gain from such a collaboration. The role of higher education in society by considering the observations, experiences, and modes of communication of the engagements could provide insights into the strengths, shortcomings, challenges, and (perhaps) conscious negligence of CE.

In the next subsections, the roles that academics play in their respective institutions of higher learning are discussed. The information-sharing amongst academics varies according to various academic functions that academics are involved in, which determine their information needs.

2.2.3.3 Teaching role

Waghid (2002) contends that to be a university in post-Apartheid South Africa at that time was regarded as disturbing and challenging and although it is now already twenty years since that publication, there are still aspects of the post-Apartheid era that affects South Africans. Globally (including in South Africa) there is a focus on problem-solving or applied knowledge as opposed to only scientific research from a disciplinary perspective to meet the growing demand for social relevance and accountability. In the continuing shift in knowledge production to being more relevant and impactful, universities need to continuously realign their responsiveness and relevance to social needs. There is, therefore, pressure on higher education institutions to become active partners with societal organisations to address global moral, economic, and social problems. This means that even in the classroom teaching staff have a role to play.

The information which supports teaching relates to the following teaching aspects: course preparation with subject expertise; availability of a variety of teaching methods; planning the courses; and illustrating the teaching with suitable examples. Information about various assessment methods catering to diverse student populations is needed to evaluate students' learning. With regards to the student, information is needed to support the students' learning processes considering diversity and equity. All these teacher practices need information for self-development and reflection (Waghid, 2002).

Chen and Gilchrist (2013) report that internationally, higher education has adopted web-based techniques as part of their teaching and learning practices. YouTube, a free video-sharing website, is one of the web-based technologies which has been used in the classroom but also as an additional source for enhanced learning. Another issue seems to be that universities and educational institutions only contribute a small number of YouTube educational videos suitable for academic learning. Many of the contributions fall into public relations, entertainment, or student creations.

Darabi, Macaskill and Reidy (2017) identify positive features and the negative aspects and associated stressors that relate to academia. These include administration loads, which they see as resulting in unhappiness of academics associated with the high level of bureaucracy. Administration is considered a burden and mostly a waste of time for academics, although some academics realise that administration related to teaching and research is a necessary part of being an academic. The second negative aspect they identify is a concern coping with stress at work, in which academics acknowledge that work is stressful and that they choose different ways of dealing with stress at work, although most are trying to cope positively. They suggest that focusing on positive feature such as their relationship with colleagues or the autonomy inherent in the job provide useful coping strategies.

Joo-Seng and Geertsema (2018) state that scholarship of teaching and learning (SoTL) can be an important strategic instrument for institutions of higher learning to build faculty effectiveness to improve the quality of teaching and thereby of student learning. SoTL can supplement disciplinary expertise with relevant levels of expertise in teaching; foster reflective practice; subject such reflection to peer review; and disseminate it to improve practice

Barbato, Moscati and Turri (2019) state that university teaching needs to continuously evolve to meet the demands of modern society such as social, cultural, and economic changes. The demand for continuously changing affects the professional profile of academics where the tension between traditional modes of teaching and the learning styles and professional expectations of

students needs to be considered. They further found that, although research in Italian universities dominated, teaching is now again becoming a priority for scholars and policymakers where both research and teaching are equally important. The identity of academics is influenced by these changes. In turn, the academics' understanding of their role as teachers impacts the organisation's position on teaching, as well as its activities and contents. Although such changes add additional workload for academics, it also provides opportunities for innovation and development of university teaching practices. They further found that the skills required to succeed as teachers at universities are mainly 'soft skills' which complement disciplinary knowledge. These specifically require the following skills such as communication, leadership, decision-making, and problem-solving. Universities' ability to provide quality education is also influenced by quality assurance agencies and assessment mechanisms. The increasing share of direct (public) and indirect (private, prestige-based) funding is based on the quality of education provided. The assertions by Barbato *et al.* (2019) show how academics' skills and knowledge could improve their roles and the efficiency of teaching and learning.

The impact of the pandemic not only affected the teaching practices of academics, but also the process of conducting this study. The spread of coronavirus in December 2019 affected the delivery of tuition in the higher education sector for the better part of the academic years 2020, 2021, and 2022. Academics were forced to revert to online teaching as the lockdown regulations and the closure of institutions to combat the virus threatened the loss of academic year 2020.

Next, the role of academics as researchers is discussed to establish the information needs for such a role, as reported by other related studies.

2.2.3.4 Research role

This section takes a glance at strategies that institutions of higher learning employ to create a research culture that where academic staff also commit to scholarly work and research outputs.. This means that these institutions of higher learning need to focus on is a multidimensional and holistic approach to create a research culture to eventually sustain a research environment where contributions to research become part of an academic's workload. The maintenance of a research culture in higher education, which is an essential part of scholarship needs to be stimulated and sustained according to the institutions' mission statements.

Waghid (2002) suggests that academics as researchers have improved their qualifications which provide a platform for developing their research interests. These academics cultivate their

research through various developmental initiatives, university research opportunities and research publications to disseminating to the scientific community.

University academic staff do complex work in an increasingly demanding environment (Houston *et al.*, 2006). Traditionally, universities have defined the role of academic staff according to the three domains of teaching, research, and service, with primary emphasis placed upon the teaching and research aspects and secondary emphasis on service or administration. The place of universities in a knowledge society has not necessarily been reflected in the workloads of faculty, with increased expectations for measurable outputs, responsiveness to societal and student needs, and overall performance accountability.

Knowledge-sharing strengthens individual creativity, critical thinking, and innovation. It also improves research and development endeavours, performance, and productivity at the organisational level (Almuqrin, Zhang & Alzamil, 2020). Knowledge-sharing decreases the amount of red tape faced by organisations, firms, and individuals in achieving economic as well as social improvements.

Ju, Stewart and Jin (2022) have identified the following barriers that may impact the sharing of research information by researchers, namely: domain disparity, where different research projects use different formats, standards, methods, etc.; boundary objects that enable information-sharing and, though used differently, provide common understanding; motivation and engagement, which may influence the level of sharing; physical distance where sharing relies on technologies; and language barriers, where available research information is not understood by the researchers who want to use it.

The global initiative for research information to be as open as possible but as closed as necessary (Hauschke, Nazarovets, Altemeier, 2021). This is the initiative of the committee of data (CODATA) of the International Council for Science (ICSU) to promote global collaboration to improve the availability and usability of meaningful and responsible research data for all areas of research. This initiative uses the FAIR principles which refers to the necessity for information to be findable, accessible, interoperable, and reusable.

Research about research projects, studies and researchers appear in different locations in different institutional databases, as well as in the individual researcher's possession, and it may therefore be difficult for people to locate the information needed for their purposes. Information could also be stored in different formats and without associated metadata will be difficult for others to use. Blümel, Dietze, Heller and Mehlberg (2014) refer to the following sources for research

information, namely: literature databases available through university libraries; search engines like Google Scholar, etc.; individual researcher's webpages; social networks, Wikipedia, research information systems; and VIVO aggregator. They found that the activities of researchers in terms of the listed sources were not sufficiently understood. They also found that research information is often manually captured, in addition to the difficulties experienced in extracting and linking research information. Although metadata formalising is well developed, the availability of retrieval tools and the usability or utility of the research information cannot be guaranteed.

The following are typical users of research information: government and research entities, universities (management and researchers), businesses, publishers, funding bodies, research networks, special interest groups, and those involved in research support.

Thursby, Haeussler and Jiang (2009) refer to the problem that different individuals may independently solve different aspects of the same problem and in such a case verification is needed is to determine the extent of different contributions. They also refer to the reluctance to share research information when researchers operate in competing environments, for example to apply for research funding.

Although it is common knowledge that science can only advance when new knowledge is shared and added to the body of knowledge, sometimes researchers are more interested in self-interest and do not provide sufficient recognition for the work of others. This could lead to misappropriation of scientific research.

2.2.3.5 Community engagement role

Waghid (2002) indicates that service roles can include activities that form part of institutional activities, for the profession associated with the discipline, and for service in a community. This could include learners from formal, non-formal and informal education settings, consider policy analysis under the guidance of teacher educators and trainers in business, other industries, and communities. These service activities can take the form of an applied research project based on the actual needs in the community and can also include the volunteering of time to address a need. The project then provides the learner with an opportunity to apply what they **have** learnt in the classroom in practice.

The institution of higher learning in which this research study is set already has community engagement initiatives in place, in which academics are involved in teaching of learners from Grade 12 during winter breaks. This assists the learners in specific subjects like Mathematics, Physical Sciences and Accounting. Also, the community project prepares the learners for their

academic preparedness for university. There are also career expos in which academics are involved that are hosted by the institution and are aimed at giving insight on what programmes the institution is offering, the opportunities that learners have and the entrance requirements that learners need to meet to enrol in the institution.

In South Africa, both the national higher education policy and individual universities cite the role of community engagement and commit to it at policy level (Shawa, 2020). For example, White Paper 3 of 1997 argued for a higher education system in South Africa that benefits society and equips people with knowledge to address national needs (Department of Higher Education and Training, 1997). It sees universities as fulfilling the role of community engagement by, among other things, demonstrating social responsibility, committing to the common good, and promoting and developing social responsibility and awareness amongst students (Department of Higher Education and Training, 1997).

Community engagement research in South Africa is relatively new compared to, for example, the Americas (Van Eeden, Eloff & Dippenaar, 2021). However, South Africa could be regarded as a leader in Africa. Scholarship of CE in the early 21st century now also includes community collaboration, as opposed to previously where CE was the sharing of best practices from a student perspective. The result of this approach was that community members were passive receivers of something that could benefit them, but where the benefit was decided by the higher institution. Currently, HEIs attempt to focus on the needs of communities with whom they form a reciprocal partnership of mutual benefit. With CE still using a hybrid model, or not being clearly articulated as an educational component of HET, it follows that the benefit of the research in the community space is not yet known. It is therefore doubtful whether research with and in communities over the past two decades in South Africa can be regarded as being socially responsive and whether it truly is included in the other HET visionary responsibilities.

Next, the information administration role is discussed in terms of how this supports the teaching, research, and community engagement functions.

2.2.3.6 Administration and university service role

Basarudin, Yeon, Yeacob and Rahman (2016) state that the work of academics requires their involvement in teaching, learning and research, which demands better understanding of the nature of student learning. Due to the demands of certain courses, a professional approach in university teaching is required. Academics must ensure compliance with the standards and aim at producing eminent graduates.

Academics are involved in the preparation of lectures, setting of examinations, and marking of scripts as part of their academic administration. The administration function is accommodated when academic workloads are determined by heads of department. It is imperative that the function is allocated a certain percentage in the workload of academics, as achievement of institutional goals is dependent on the administration function.

2.2.3.7 Learning role

Rapanta, Botturi, Goodyear., Guadia and Koole (2020) found out that the COVID-19 pandemic raised significant challenges for the higher education community, to change their normal face-to-face practices without any warning to online practices. This means that academics needed new pedagogical content knowledge to design and organise for better learning experiences in digital-enabled environments without being able to first prepare for such an urgent and drastic change.

The institution of higher learning being explored had to design learning activities with certain characteristics to adapt to the new normal, which required that academics learn new ways of delivering quality content to their respective students. The design of learning activities involves three types of presence: social, cognitive and facilitatory presence. The change from face-to-face to the online mode of teaching required that the institution adapt assessment to the new learning requirements. The present study explores technology-enabled information platforms for collaboration amongst academics by looking at the mandated roles that academics perform as they look to share information, as determined by their information needs.

Furthermore, Rapanta *et al.* (2020), further reveal that online learning (readings, videos, exercises, etc.) is based more on material for self-directed learning than on direct personal interactions (discussions and presentations, etc.). It is difficult to compare online teaching and learning practices with face-to-face teaching and learning practices because these are so diverse in nature. The design of an online course is a strongly student-centred approach, in which the teacher's role is more focused on facilitation and on student support with regard to competence development.

The findings above entail that academics learn new ways of doing things and that their application of online teaching should be informed by mastering procedures to use learning management systems (LMS) to be relevant in the "new normal" created by the COVID-19 pandemic.

2.4 Information practices situation

McKenzie (2003) indicates that the social constructionist paradigm focuses on social practices as the activities of people interacting with each other in specific situations, in some cases as routine activities in social contexts across time and space. A focus on practices rather than on behaviour shifts the analysis from cognitive to social and is consistent with the study of information seekers within their social context. Accordingly, the term information practices are used here to refer to aligned to Wilson's definition of information behaviour and in situations of how information comes or is given through the initiative or actions of people. Since gaining momentum within the Information Science field, practice theory and the concept of "information practices" have been applied at varying levels of granularity. Information seeking, sharing, and use form part of information practices that are influenced by the social context, as outlined by Zhong *et al.* (2022).

Klimova and Berger (2018) state that the trend among young people is toward intense use of mobile media devices and media multi-tasking, and that many studies have investigated these behaviours in the classroom, mainly from the perspective of the students, in terms of their impacts on learning. While it is clearly relevant to understand how such behaviours affect students, it is also important to understand their impact from the teacher's perspective, given the teacher's key role in organising the learning environment. Both as learning resource and potential distraction, media devices clearly impact the job of the instructor. As the intense use of media is prevalent among university students in many countries, the views of teachers in higher education are also relevant in this context.

According to Zhao, Zhang, Tang and Song (2021) the term 'information practice' refers to a set of socially, culturally, and historically constructed and materially mediated actions to identify, create, seek, manage, use, and share information. This definition represents a constructivist and holistic view of information behaviour postulating that information-related activities are shaped not only by users' knowledge, values, goals, and interests, but also by tools and artifacts, social norms and rules, and users' cultural orientation and changing life situations. This "practice-turn" in library and information science was ushered in by a number of researchers who promoted the notion of studying information behaviour (e.g., information needs, seeking and use) in the context of "local practice."

The information practices of academics require the sharing of information in order to meet the information needs required for various situations that academics are mandated to perform. This is because academics are mandated to perform various functions which include teaching and learning, research and administration. It is in this regard that academics have various information

needs that require collaboration through information sharing. The current topic forms the basis of discussion for the next topic under 2.5, which is information needs as required by academics.

2.5 Information needs

Naumer and Fisher (2020) revealed that despite its centrality to information seeking, use and sharing the concept of “information need” remains ambiguous in the literature. This difficulty may stem from the fact that it is challenging to create a boundary around the concept of “information needs.” Wilson suggested that an “information need” is secondary to a primary need such as food, shelter, and clothing. In order to understand an information need, it is often necessary to understand the context of human needs that created a need for information.

The assertion relates well with the context of this research study since the academics need information for various information practices aligned with their roles. In pursuit of their goals, the academics being investigated are required to fulfil their information needs through collaborating with each other. The current study explores technology-enabled information sharing platform for collaborating by studying various information needs of academics and their information practices. Research done by Naumer and Fisher (2020) aligns with this research study as academic collaboration is informed by the need to share information relevant in situations that require collaboration and pursuit of academic goals.

Afzal (2017) reveals that studies of users’ information needs have a long history, which includes debates about what defined user needs. This also includes attempts to establish theoretical frameworks for studies related to information needs. She further claims that the literature study reveals conceptualisation and measures that determine information needs and advocates for research on the history of information needs and touches on debates surrounding the terminologies, theoretical underpinnings, and research paradigms that inform the research.

The current study shows how the use of technology-enabled information sharing platforms are relevant to address information needs of academics to enable various academics in a collegial information sharing in an institution of higher learning. The situational circumstances of academics and the institutional setting and the structure requires that academics collaborate to address their information needs.

According to Humbhi and Tareen (2022) in the modern era, individuals require information for personal usage, professional progress, and social survival. The scholars believe that information needs are not homogeneous for everyone it differs from person to person. Information is a cornerstone of modern civilization on which practically everyone relies. Every individual uses that

information according to his or her need and that the progress of any nation will be impossible unless and until the information is made available to people who need it.

2.6 Information objects

The current study provides for the description of information that academics share in their pursuit for information needs. The information objects as a concept appearing on the conceptual model determines how the requested and shared information amongst academics is presented. The necessity of this section of the study is imperative in understanding and revealing the form of information prevalently requested in the collaborative information sharing amongst academics. The conceptual basis of information objects will add to literature in term of form of information being shared during collaboration.

Gorichanaz (2017), in his study, claims that one task that information professionals face is the description of objects in their collections. The description of the object is carried out to assist in the retrieval of information and the aspects of the objects include both content and form. In exploring how academics share information, academics were asked what information object was needed. This research study seeks to contribute to the conceptual basis of information-sharing by exploring the concept of information objects using the developed conceptual model adopted for the study.

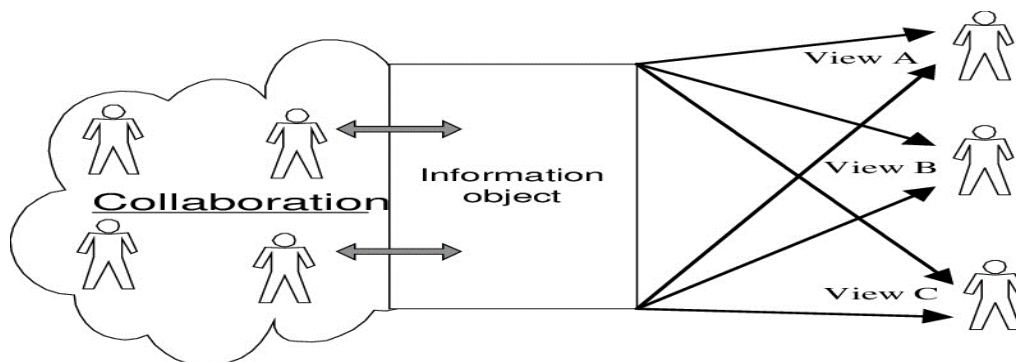


Figure 2: Information Objects for Collaboration (Farschian, 1998)

The above figure was adopted from Farshchian and depict Information objects in use. According to him, each information object provides a user interface to a group of users (to the left). This interface supports collaboration among the group members with the aim of changing the information object. Collaboration here is supported using email lists. The closed part of the object (to the right) provides different views of the updated information content in order to support different understandings.

The above assertion enabled by the figure adopted by Farshchian aligns very well with the purpose of the study and the understanding of information objects being shared is enhanced.

2.7 Information seeking/sending

The conceptual model adopted in this research provided for seeking/sending concept as informed by the information practices situations of academics which required information needs of academics to be met through collaborative information sharing. The aim of this study is to explore technology-enabled information sharing platform to enable collaboration through information sharing. The current concept provides for two-way processing of information in which academics share information in pursuit of meeting their information needs. The process starts with the initial academic requesting for information and the next academic providing the required information so that information needs can be met and information practices can be realized. Various situations result in seeking and sending behaviour to pursue information needs.

Research carried out by Sultana (2016) reveals that seeking for information entails a behaviour resulting from a person searching for information for the purpose of decision-making regarding completion of an assigned task. This is because people need information in all aspects of life to collaborate and solve problems or exploit opportunities. Thus, information-seeking behaviour involves a set of actions which include information needs, evaluation, and selection of information for betterment of a situation. The requests for information are informed by the type of information need aimed at when executing certain activities of academics.

A review of the literature within the field of information behaviour indicates that information seeking is often approached on the basis of a categorisation of either specific roles or groups (e.g., information seeking of scientists, parents, students, insurance agents); on the demographics of information seekers (e.g., tweens, the elderly, rural people); or on the context in which the information seeking takes place (e.g., in schools, in the workplace, in everyday life) (Pilerot, 2014).

In their research, Pwadura, Plockey and Yebowaa (2018) indicate that the business of higher education is knowledge-driven, dependent on information. Knowing how to access information therefore is very important. Information seeking behaviour can be understood as the way and manner people search for and utilise information for personal use, knowledge updating and development. It is the drive that opens access to information, data and knowledge utilisation and dissemination.

The developed conceptual framework accommodates the seeking and sending of information by academics for the purposes of meeting their information needs. The situation surrounding the sharing of information is purported by the desire to meet information needs of academics. The information practices situation of academics requires that they be involved in seeking for and sending of information. This is a two-way process which results in a collaborative engagement amongst the academics with similar interests and purpose. Using collaborative technologies, information is shared amongst academics in which one requests (seeks) for information and the information is provided and sent (shared) through the same platform that was used and collaboration is achieved and information needs are met to enable information practices.

2.8 Purposes of information-sharing

The aim of the current study is further operationalized to investigate the purposes of information sharing amongst the academics at an institution of higher learning under investigation. This research highlighted that for collaboration to take place, information sharing must take place so that information needs of academics can be met. The circumstances that lead to the quest for information sharing are recorded and that information practices situations result to the need to share information using technology-enabled information sharing platform to enable collaboration amongst academics. This section of the study reviews literature on the purposes that lead academics to share information and documents the gathered information from the research scholars.

The sharing of information can be used as an approach to improve relationships and social networks between the people involved in the process (Mohammed & Jaber, 2017). This process uses simple methods of sharing, such as face-to-face conversation. Mohammed and Jaber (2017) emphasise function and value of information-sharing by outlining three reasons why people share their information with others, which are to establish mutual awareness between sender and receiver, educate or raise consciousness and develop rapport.

Conducting and delivering up-to-date research is key to academic work but keeping current with information is more challenging: the researcher must locate relevant information within a body of literature that is growing by millions of new articles per year. Many researchers feel that they do not find all the information on the topic regarding which they are searching (Pontis *et al.*, 2017). Factors that could influence inter-organisational information-sharing can be regarded from three perspectives, namely: organisational and managerial perspective; technological perspective; and political and policy perspective (Yang & Maxwell, 2011). They further indicate that the three contexts of information-sharing are interrelated, i.e., the individuals of a department group;

departments or groups of the organisation; and organisations with each other. They regard information-sharing across organisations as a key strategic activity. When conducting a systematic literature review on knowledge management in higher education, Nunes *et al.* (2017) identify individual, technological, and organisational factors that influence the knowledge management process that could lead to a competitive advantage; organisational efficiency and performance; and organisational learning.

One of the objectives of this research study is to find out how academics currently share information, and the objective is further developed through interview questions that seek to establish the purpose for which a certain type of information was needed.

2.9 Information-sharing approaches

Pilerot and Limberg (2011) state that information-sharing activities form part of information practices, such as information seeking and use. Furthermore, information and communication technologies (ICTs) can be regarded as important parts of the engagements between humans with other humans or with non-human entities that, together with practices, form the social space in which the scholars are active.

Next, different types of approaches used for information-sharing are discussed.

2.9.1 File sharing (Dropbox) approach to information-sharing

Dropbox is a file-sharing service that started in 2008 and provides cloud storage and file synchronisation for users (Chang, 2013). Once a user account has been created, the users are able to download the client software and may create synchronised folders across various devices using software on each computing device. The file-sharing approach is also considered by academics in the current study.

2.9.2 Face-to-face approach to information-sharing

Cooperation forms the basis of our society and becomes increasingly essential during times of globalisation (Behrens & Kret, 2019). However, despite technological developments, people still prefer to meet face-to-face, which works better for cooperation amongst each other. However, what is still unclear is how this beneficial effect depends on what people know about their interaction partner.

2.9.3 Electronic mail (EMAIL) as an approach to information-sharing

Electronic mail can be an effective tool for communication with academic staff (Khoru, 2019). This is because, with emails, files can be attached and shared amongst members for the purposes of

collaboration. It seems that email can be an effective tool for organisations to communicate with their employees, in the case of this study also academics. For the institution of higher learning under investigation, the use of email can also be an effective tool for academics for information-sharing, due to its ease of use and the availability of a helpdesk to assist staff where necessary.

2.10 Information-sharing platforms

Information-sharing is one of the important aspects that improve the quality of businesses (Mohammed & Ibrahim, 2014). They claim that, with the advance of information and communication technology (ICT) where organisations are increasingly becoming more digitised, electronic information-sharing is used more and more to support decision-making. The current research study discusses the technologies used by academics in their collaboration activities.

Next, the information-sharing platforms typically used by academics are discussed.

2.10.1 Current information-sharing platforms

The evolution of technology, educational applications and mobile devices present new opportunities for collaboration and information-sharing in the online space (Pham & Williamson, 2018). Social technologies for collaboration and information-sharing in libraries are the most widely used applications.

2.10.2 Blackboard Learning Management Systems

In his research study, Mpungose (2019) states that Blackboard Learning Management Systems (LMS) are learning platforms that enable the creation, management, and delivery of educational content online and which make it easier for institutions of higher learning to administer educational content globally. His view is supported by Uziak, Oladiran, Lorencowicz and Becker (2018), who opine that Blackboard Learning Management Systems is a preferred information-sharing platform that is prevalent in some institutions.

The use of Blackboard is preferred due to many benefits realised through its implementation, and for reasons which include, and are not limited to, the provision of peer support and peer coaching, being a good medium for communication and exchange of information, promotion of lifelong learning and active engagement concepts, and exposure of students to modern technology and provision of additional resources for teaching and learning. This view is further developed in the research carried out by Al-Otaibi (2017), when he claims that Blackboard software allows for the enhancement of virtual learning environments, thus keeping abreast with traditional learning and distance education programs. Educational institutions also benefit from the implementation of

Blackboard, as it presents courses online as a supplement to traditional learning courses and allows the universities to add e-learning sources, such as PowerPoint, video, audio and motion files and other applications, which Blackboard doesn't incorporate, to enhance courses, improve teaching and increase learning competence.

2.10.3 Facebook as an information-sharing platform

The current study reviews Facebook as an information-sharing platform that academics can use to share information amongst themselves. The discussion of Facebook stems from the interview question that sought to find out the current platform used by academics to share information. Khoro (2019) states that Facebook is the most popular information-sharing platform that allows its members to stay connected with friends, family, and colleagues, to discover what is currently new in the world, and share and express what matters to them. It has recently garnered a huge increase in the number of users, where there are currently 2.96 billion monthly active users registered on Facebook (Statista, 20220).

2.10.4 Microsoft Teams collaboration technology

The research carried out by Mazzola (2019) reveals that the introduction of Microsoft Teams collaboration technology has resulted in organisations being able to meet virtually without having to meet physically. MS Teams is a platform as part of an integrated collaborative environment, where this emerging technology enables social practice replacing the need for face-to-face events such as meetings and classes. MS-Teams is a communication platform that combines chat (private or within groups), video meetings, collaborative file management, and application integration. This platform also allows for collaborative engagements 24/7, providing an opportunity to better focus on work, keep up to date with new developments, and share good practices using this platform that is easy to navigate and use.

Microsoft Teams gained popularity during the novel Coronavirus pandemic, as organisations introduced means to enable their employees work from home. This was due to the lockdown restrictions that were put in place to control the spread of the virus. This institution of higher learning being studied complied with the national call by the President to close institutions. During the time of closure of institutions of higher learning, meetings were held through Teams to keep the institution operational.

In another research project on Teams, Ireddy and Nungonda (2019) claim that Microsoft Teams enables employees to communicate due to its functionalities that include voice, video, live chat, and ability to share documents during meetings. The use of Teams has allowed integration of

Office 365. The use of Microsoft Team enables members to customise the applications to satisfy their needs in the workplace. The adoption of MS Teams as a collaboration technology in this institution of higher learning affords the institution an opportunity to tap into its technological capacity and exploit the benefits inherent in bringing staff located in its geographically dispersed campuses for meetings and information-sharing opportunities. This affirmation by academics who participated in this current study is confirmed by literature sources consulted.

2.10.5 WhatsApp as an information-sharing platform

The desire to use information as a basis for decision making and to solve problems in our societies have resulted in the need to share information. Due to various information needs, technology platforms have been developed to counter this need. The research carried out by Igbafe and Anyanwu (2018) reveal that WhatsApp as a platform to share information is used as an educational tool that institutions and lecturers tap into to achieve its functional benefits, which include its ability to allow group information-sharing. WhatsApp is viewed as a strategy to enhance students' academic performance, as lecturer notes and videos can be shared to enhance teaching and learning. The academics of the institution of higher learning where this study took place confirmed that they were involved in WhatsApp forums that have been created to discuss topics, or departmental and subject groups to allow information-sharing and collaboration amongst the academics themselves.

Baishya and Maheshwari (2019) perceive the advantages of WhatsApp groups as user-friendly, easy to communicate, and providing written and stored communication.

2.11 Information-sharing platforms for future use

De Vreede (2016) states that information technology advances in recent years have facilitated new forms of information and knowledge-sharing. Teams and organisations are increasingly exploring and adopting new technologies to support collaborative work. Technologies for collaborative work range from collaboration and communication technologies that connect members of virtual teams across national and international boundaries to social media technologies. Therefore making it possible for individuals and teams to collect, exchange and share information from within organisations as well as outside their organisational boundaries.

In their piece titled, "Knowledge generation and sharing in online communities: current trends and future directions," Tausczik and Huang (2020) report that advances in technology and communication platforms have enabled the open exchange of knowledge within online communities. In these communities, individuals voluntarily share information for many reasons,

which include helping others, fostering a sense of ownership and belonging, and a belief in generalised reciprocity. This theme emanated from the research question that sought answers on how academics were sharing information amongst themselves.

2.12 Benefits, barriers and challenges of using technology-enabled information-sharing platforms

Mohammed and Ibrahim (2014) indicate that technological factors refer to the influence of technological characteristics on electronic information-sharing in inter-departmental teams. IT capability is defined as the ability to apply effective IT use in departments to share information electronically with others. Data security and privacy are considered important factors in successful inter-departmental collaboration. Dintoe (2018) reports that, although the technology was available and accessible, adopters of technology in universities in Africa find it hard to use technology in teaching and learning. Their experiences were often not compatible with the new technologies in the system, and students often do not access the available technology for use based on various reasons such as costs, lack of electricity, and lack of skills and knowledge of how to use certain tools associated with the technology.

2.12.1 The benefit of using technology-enabled information-sharing platforms

The findings of Arshad and Akram (2018) indicate that the use of technology-enabled information-sharing platforms has improved how communication and collaboration between two parties manifest. Collaboration through social media platforms improves communication and help to bridge communication gaps that would otherwise cause communication barriers. Their research also revealed that social media platforms enable the development of communities of practice which facilitate communication and collaboration of members of the community.

However, despite the challenges inhibiting sharing information, numerous benefits that can be accrued have been outlined (Chidiebere, 2014). Sharing information with people with the same interests creates positive environments that facilitate trust and cohesion. Studies have shown that at first, reluctance is exhibited, but with time and subsequent occurrence of the event, trust is built and relationship ties become stronger, thereby creating an enabling environment for further engagement in the information-sharing activity. He further claimed that the shared information and other shared materials allow researchers to build on each other's work and achieve results faster. When ideas and other resources are exchanged or transferred, a person's information collections are enlarged, giving room for relevant information needed to facilitate research and

academic work to be received and used, thereby accelerating the completion and success of the task.

2.12.2 Barriers and challenges of using technology-enabled information-sharing platforms

This research seeks to establish the challenges that are faced by academics in their use of technology-enabled information-sharing platforms for collaboration, and this section of the study reviews the literature from various scholars. Whilst the benefits and impacts of employing technology-enabled information-sharing platforms are known, there seems to be acknowledgement of the existence of barriers and challenges by the different scholars that affect the use of such platforms. Therefore, this institution of higher learning is expected to face the same barriers and challenges in the use of social media tools.

According to Vivakaran and Neelamalar (2018), academics in institutions of higher learning tend to be reluctant to use technology-enabled information-sharing platforms for sharing of pedagogical knowledge, due to their attitude to the use of social media tools. Other known barriers to technology-enabled information-sharing platforms are lack of infrastructure and technological facilities, lack of access to social media platforms and concerns about privacy.

2.13 Information-sharing collaboration influence on performance

The research study further investigated the impact that information-sharing has on the academics sampled in the study. The aim is to determine whether academic collaboration results in any positive change on the novice academics and the experienced academics involved in this information-sharing. In summary, the purpose of this section is to find out whether information-sharing has contributed to academic performance and in what way.

According to Islam (2017), in higher education institutions, it is essential to utilise and share the knowledge of teaching and technological expertise of faculty members, their research experience, and materials, because these will be helpful for promoting individual performance, as well as the performance of the institution as a whole. The institution of higher learning where this research will be conducted will benefit from the sharing of information, as its academics use information-sharing and collaboration to develop and improve their job performance. It is against this background that information-sharing is considered as having both benefits and negative implications on organisations, as seen through research conducted by previous researchers in multifaceted dimensions.

2.14 External environment

Mohammed and Ibrahim (2014) state that the external environment has a direct effect on information-sharing between departments in an organisation. Political pressure influences the central government and the decision-making processes of local authorities. In addition, this pressure can also affect the design, implementation, and adoption of inter-organisational systems. Economic pressures could influence the central government's economic policies and may then affect interdepartmental collaborations at a local level. Information-sharing needs policies to create an environment to share information effectively among departments. Community pressures include things like data privacy and data protection because they influence decisions on sharing of personal or contact information.

2.14.1 Organisational environment

In their research, Mohammed, and Ibrahim (2014) report that electronic information-sharing between an organisations' departments is based on collaboration that constitutes a network of relationships. It is the responsibility of Organisational leadership to commit to the provision of support for electronic information-sharing between departments.

The phrase 'Return on Investment' refers to the tangible and intangible analysis of the costs and benefits of information-sharing to establish to what extent it may influence the decision-making of electronic information-sharing. Mohammed, and Ibrahim (2014) further claim that a network collaboration culture refers to the collaboration between departments to deliver and manage organisational services where a network is formed by the persons sharing the information. Organisations are characterised by several networks of collaboration among the persons in the different departments where these networks form part of a complex organisational network around collaboration. The number of persons with authority to govern information-sharing can be considered one of the factors of electronic information-sharing in inter-departmental settings. The size of organisation can be measured based on the resources of the organisation, the number of transactions, and the size of workflows.

2.14.2 Technology environment

Mohammed and Ibrahim (2014) state that technological factors refer to how the technology effects electronic information-sharing between departments influenced by the technical characteristics of technology. IT capabilities include the ability to apply IT appropriately in departments to share information electronically with others. Data security and privacy are important factors in the context of inter-departmental collaboration and need to be specifically considered. When security

and privacy measures are too stringent this could result in less trust and confidence in a department because of the lack of ability to share personal information, and thus to establish identities. For information-sharing between departments to be successful, it is necessary to use high quality information.

Collaboration based on Information quality can improve the quality of a service that is delivered to the users of the service. The Interoperability framework refers to compatibility standards with regard to the ability of different information systems in different organisations to utilise information. Technical interoperability means the use of integrated information systems among organisations by using common standards to integrate work processes and information (Mohammed & Ibrahim, 2014).

The pandemic created a situation where organisations did not have the luxury of time to try out alternative modes of work to replace being physically at work. The same situation applied to institutions of higher education where face-to-face (F2F) teaching was no longer possible and instead an emergency remote teaching (ERT) model had to be adopted without being able to test such a model first (Songca, Ndebele & Mbodila, 2021). Emergency remote teaching had to be rapidly implemented responding immediately to the situation of the pandemic.

The need to consider an emergency measure was to find an alternative, even if this would only be a temporary, mode of learning to replace the traditional mode of learning. When ERT was implemented, F2F teaching became flipped which means that it turned into digital education. ERT was the solution in response to a crisis that prevents traditional F2F teaching from taking place. In addition to an ERT mode of delivery, other channels such as online lessons, radio lessons, and blended learning were also introduced as temporary emergency measures to ensure that learning continues (Songca *et al.*, 2021).

2.14.3 Inter-departmental environment

An inter-departmental environment refers to the relationship between departments as each has its own business and operational processes based on the organisational business and operational processes. A business process is important in the context of electronic information-sharing in an interdepartmental setting to facilitate information flows (Mohammed & Ibrahim, 2014). The usefulness of electronic information-sharing in public organisations is only possible if decisions and business processes are aligned or merged. Electronic information-sharing is only possible when there is a collaborative network based on relationships formed around shared work practices, and these depend on mutual trust. 'Critical mass' occurs when many departments share

or will share their information electronically which means that electronic information sharing becomes part of daily work.

2.15 The South African context of information-sharing

Mpungose (2020) reveals that before the Coronavirus pandemic, South African universities were hugely dependent on face-to-face teaching and learning in which space was needed to house students in a venue to conduct teaching. But due to the COVID-19 pandemic, physical classes were suspended, and in-person teaching was impossible. There was a need to save the 2020 academic year, and universities, together with the Department of Higher Education, needed to devise means by which students were provided with laptops or similar devices to facilitate e-learning. The administration of electronic learning has the potential of providing real-time contact and prompt feedback to students.

2.16 Higher education culture

In his research, Maiga (2017) is of the opinion that universities should generally promote a culture of knowledge-sharing among academics where information is disseminated on various platforms. In addition to information sharing as part of the daily work of academics in their roles of teacher, and researcher, during academic work or community engagement, the outcome of information-sharing practices should be shared more widely. This could be done through, among other methods: seminar presentations, publications, public lectures, conferences, and colloquia. Maiga (2017), however, that universities typically do not have formal organisation structures and policies focusing on the promotion of knowledge-sharing.

Deja and Wojcik (2020) state that information culture is a broad, difficult concept to define and has been discussed in the field of library and information science, as well as other disciplines, such as psychology or management sciences, yet different definitions, approaches and models of this concept are functioning in tandem. The information culture of the organisation is an important factor in knowledge creation processes and can add significant value to teamwork projects. The ability to diagnose information culture and the awareness of its relationship with other processes can therefore be extremely important from the librarians' point of view. Librarians who want to effectively cooperate with the academic community and be an integral part of it should first learn about the information culture of the environment they wish to contribute to.

Virkus and Salman (2020) are of the opinion that information culture has been studied mainly in a business context. In the HE environment, information culture is not widely explored, and they studied the interactions of culture with the management of information in organisations, focusing

on the characteristics of information cultures at three distance learning universities in Australia, Germany and Hong Kong. The academics partaking in this study were asked to explain how information-sharing culture was promoted amongst academics in their institution and across other institutions.

2.17 Literature review during COVID-19 pandemic

The research study was conducted during Covid-19 pandemic when the country was closed and movements were restricted to manage the spread of the pandemic. This section addresses how the review of literature was affected by the situation surrounding Covid-19 and how data was gathered when the universities were closed. The importance of this aspect of research provides for knowledge of circumstantial issues which provided the limitation in the review of the literature as the secondary source of information. In a normal situation, the researcher would have been able to source information in a university-based setting but due to the pandemic that could not be possible. The introduction of this sub-section of the literature reviews was to show how this study was constrained in terms of gathering secondary information due to the limitations of Covid-19 pandemic as informed by government regulations that meant to curb the spread of the virus.

Zamani *et al.* (2022) said that the pandemic of Covid-19 has compelled numerous companies worldwide to use several growing online communication platform technologies fully. Educational institutions are among the organizations that have urged students and educators to communicate through a variety of online communication platforms in order to maintain an ongoing educational process. However, the Covid-19 pandemic has created challenges for the worldwide education sector when using these expanding technologies. The challenges were highlighted in many recent studies.

This study aimed to explore technology-enabled information sharing platform for collaboration amongst academics. This aim was to be achieved by investigating current technologies and future-oriented technology-enabled platforms that impact on collaboration through information sharing. The quest for review current literature was impacted by the scourge of Covid-19 pandemic as government regulations regarding the pandemic were in full force and that the researcher relied heavily on the internet router for accessing literature. This posed challenges included lack of internet connectivity caused by network problems, inadequate data to access internet.

This literature review implies that they could facilitate relevant authorities such as educational institution administrators, officers serving the Ministry of Higher Education and policymakers in designing effective measures to tackle the challenges.

The findings of Hall, Gaved and Sargent (2021) indicate that the cost of internet data proved to be a barrier to facilitating effective online learning, something which was exacerbated due to the parents of learners losing their jobs due to COVID-19. Initiatives such as community buy-ins and deals with data providers may help in providing devices and reducing data costs. Furthermore, ensuring communications are concise and shared files are as small as possible may also aid in bringing the cost of data bundles down further.

2.18 Proposed conceptual framework

This section presents the conceptual framework underpinning this research study. It enables the researcher to generate a suitable and applicable theory to explore technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning.

This study is underpinned by the proposed conceptual framework derived from the literature where the 12 concepts (C1-C12) relevant to the study were constructed. This framework is informed by the Communities of Practice (CoP) theory to consider academics as the community who are involved in information-sharing practices. The community is academics from the institution of higher learning whose practices are being explored, and it is based in the Eastern Cape. The setting of this research is the institution of higher learning itself, which is spread across four cities which in a radius of about one hundred kilometres apart, and the academics selected in this study are in geographically-dispersed campuses.

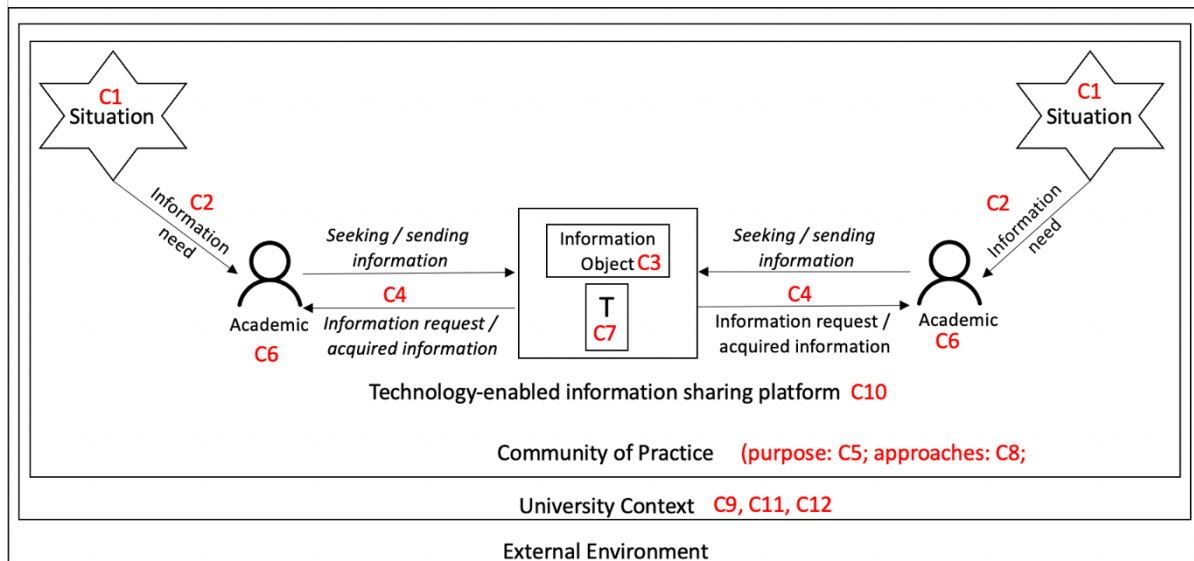


Figure 3: Conceptual framework for a technology-enabled information-sharing platform for an academic community of practice

2.19 Chapter summary

This chapter dealt with the literature review, using a proposed conceptual framework to guide the study. The conceptual framework used in the previous chapter (Chapter 1) was used as a foundation to discuss various concepts entailed by it, which were discussed in line with the views and statements of participants who took part in this research study. Research papers and articles were consulted and some which were found to be congruent with the study were used. Sources whose information was meaningful in this study were cited and later listed in the reference page to acknowledge their scientific work.

The conceptual framework was developed and informed by the objectives the study sought to achieve and these included the situations that informed various information needs of academics. The model also detailed the purposes of information sharing and the platform used to share information amongst academics. The use of the adopted conceptual model provided an overview of collaboration which is informed by information sharing and brought up a community of practice (COP) in which academics were and whose information practices situations were driven by their desire to meet their needs by using various approaches inform their practices.

The aim of the literature review was to align the views of the various scholars consulted with those of the academics who took part in the research study. The literature highlighted the theoretical overview of information-sharing and communities of practice in academic communities. The literature was collected to support the research objectives that this study sought to address.

On that basis, various structures that support collaborative information-sharing were discussed in informal groups, as well as supported and structured groups. This was necessary to highlight the different types of groups engaged in a community of practice. Therefore, the academics in this study affirmed that even in their information-sharing endeavour, there existed the mentioned groups which determined the level of information-sharing which was taking place amongst the community of the institutional of higher learning under exploration.

The issue of the current technology-enabled platforms and those which were considered platforms for the future were discussed. This included the importance of inculcating a culture of information-sharing across the institution.

CHAPTER 3: RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This research follows the suggestions by Webster and Watson (2002), adopting the following steps to identify and obtain literature for this review. Firstly, leading journals that deal with the research topic are identified as the first step in writing a literature review. The reason for this is that significant contributions in the field are likely to appear in the leading journals. Other journals that met the search criteria were also considered. Conference proceedings were also considered during the review. Google Scholar was the main search engine used, in which keywords like information-sharing, community of practice, information needs, information, and higher education culture were used to identify relevant articles, titles, and authors. Once the databases that publish related research were identified by Google Scholar, the university library was used to search for relevant literature in those databases, e.g. Emerald, Ebscohost, ScienceDirect, etc.

According to Wilson (2014), research is a “step-by-step process that involves the collecting, recording, analysing and interpreting the information”. Furthermore, Myers (2013) explains that research is an original investigation of some phenomena to contribute to knowledge and understanding in a particular field. The methodology to be followed in this chapter was discovered using a ‘research onion’ adapted from Saunders *et al.* (2019).

According to Hyland (2016), any research design can be used to answer any research question. In this study, the research question is:

RQ: What technology-enabled information sharing platform do academics currently use obtain information for their academic work for collaboration?

This study aims to explore technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning, and how the sharing of information amongst academics manifests.

The researcher adopted the research onion by Saunders *et al.* (2019) to simplify the steps to be followed in deciding on the appropriate methodology. The approach taken in using the research onion framework is to go from the outer layer to the inner layer of the research onion. The outermost layer is the research philosophy, which sets the stage for the research process and defines the method which is adopted as the research approach in the second step. In the third step, the research strategy is adopted, and the fourth layer identifies the time horizon.

The fifth step represents the stage at which the data collection methodology is identified. The benefits of the research onion are thus that it creates a series of stages under which the different methods of data collection can be understood and illustrates the steps by which a methodological study can be described.

The Saunders research onion stages include:

- Research philosophy
- Research approach
- Research strategies
- Research choice
- Research time horizon

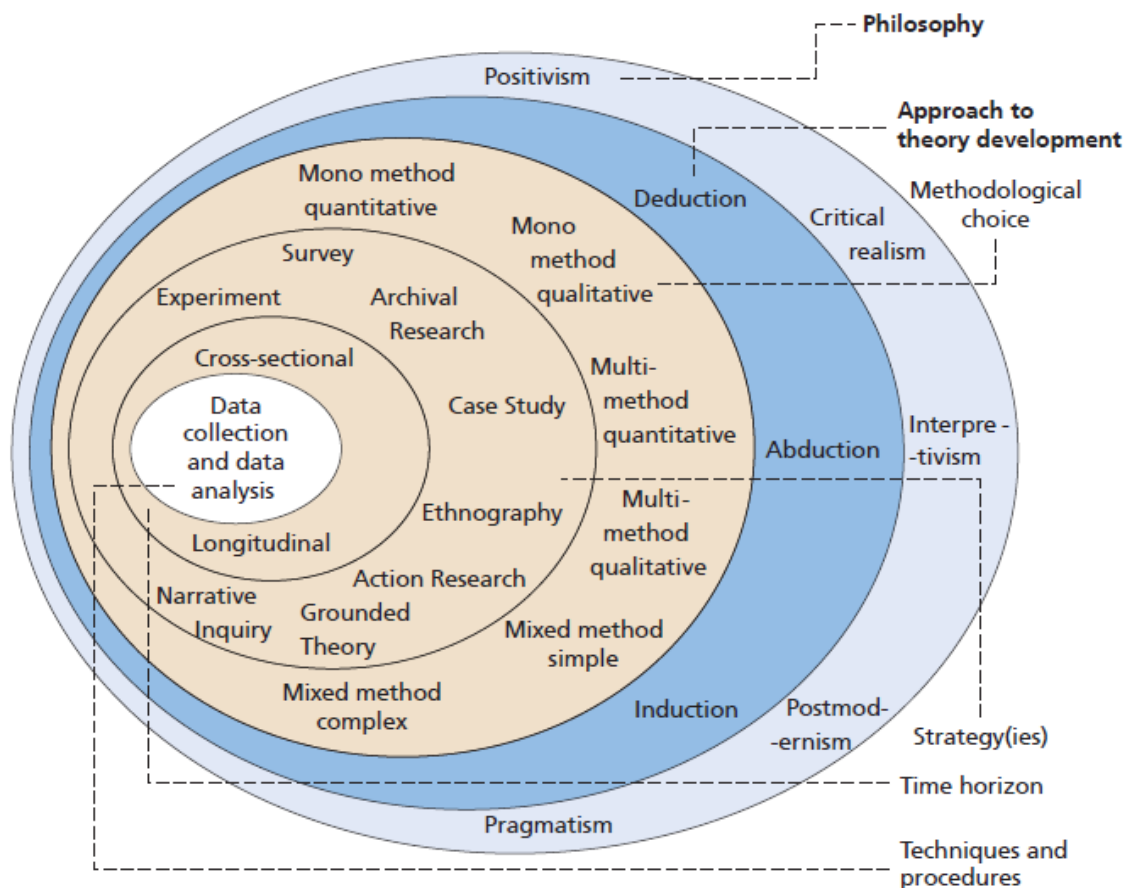


Figure 4: Research onion

(Source: Saunders, Lewis & Thornhill [2019])

3.2 Research philosophy

This section aims to understand the research philosophy and approaches that are suitable for this study. The process of exploring this current research philosophy requires honing the skill of reflexivity, which is to question one's thinking and actions and learn to examine one's beliefs with the same scrutiny. To this point, the exploration of one's philosophical position and being able to translate it into a research practice will then inform one's practical considerations when undertaking research.

Research philosophy refers to a system of beliefs and assumptions as to how knowledge is created. Knowledge development forms an integral part of research where, in a study involving people, it is developed through a process of abstraction to attach meaning to how humans make sense of interacting with each other, objects, and the influence of the environment. Research philosophy aims at creating human knowledge through a process of logical inferences to make claims about what is knowledge (ontology), how knowledge can be acquired (epistemology), what values go into it (axiology), how it is written (rhetoric), and the processes for studying it. Researchers make assumptions aligned to the nature of the research to study how reality is viewed; the nature of knowledge and whether truth can be determined through existing patterns or not (Saunders, Lewis & Thornhill, 2019)

The view of Saunders *et al.* (2019) aligns with Goddard and Melville (2004), who state that research philosophies can have different goals of research and the way that they might be used to achieve these goals. Therefore, understanding the selected research philosophy can help explain and understand the assumptions of the research process, and in what way these assumptions are appropriate for the adopted methodology. The research philosophy can broadly be presented as the ontology and epistemology of research. These concepts are broadly discussed in sections 3.2.1 and 3.2.2 respectively.

3.2.1 Ontology

Ontology is a Greek compounded term with '*on*'- meaning 'being' and '*logia*' – meaning 'a subject of study or interest.' It is the study of being, what it means for something to exist or the nature of being (Knight & Halkett, 2010). Within science, the ontology defines the structure of the world through observation and experiment. Within philosophy, ontology identifies and establishes the relationships between the categories (Knight & Halkett, 2010).

Knight and Halkett (2010) suggests that ontology considers whether reality is based on existing, fixed and stable patterns or whether it is constructed through the human mind. Cua and Garrett

(2010) state that ontological questions in information systems research should consider the following: definition of the phenomenon being investigated; how reality is perceived; the key stakeholders involved in the study; the important components of the information processes and how these interact with each other for change drivers, antecedents, stages, phases, decision points and consequences. Further considerations for information processes are how the different processes are constituted; what their purposes are; and what causes the processes to be successful or to fail. The answers to these considerations depend on one's interpretation of reality, affecting the way the phenomenon is defined.

According to Ormston, Spencer, Barnard and Snape (2006) The ontological debate has consisted of two but opposite positions: ontological realism versus ontological idealism. Becker and Niehaves (2007) state that ontological realism assumes that entities and processes are reducible to matter or material forces. He further contends that the truth is objective, static and measurable (Killiam, 2013). Killiam (2013) continues, to say that ontological realism presents the truth that can be determined by using scientific methods.

Becker and Niehaves (2007) posit that ontological idealism, on the opposite end, searches for meaning as the truth is perceived by humans. For ontological idealism, the truth is subjective, dynamic as it is affected over time. They further propose that the human mind of the observer forms the perceived world and the objects in it and suggest that groups of people in particular contexts negotiate shared perspectives.

This study takes on the subtle ontological idealism approach because it seeks to construct the contextual social reality as shared by the academics as they divulge information in their work situation. This approach aligns to the exploratory nature of the study.

3.2.2 Epistemology

Epistemology refers to assumptions about knowledge, what constitutes acceptable, valid, and legitimate knowledge, and how we can communicate knowledge to others (Saunders *et al.*, 2019). The multidisciplinary context of business and management will also influence the type of knowledge applicable to such contexts that include numerical, text, visual and other contextual information in the form of facts, opinions, narratives, presentations, etc. As a result, different researchers in that context adopt different epistemologies in their research using different strategies and methods (Saunders *et al.*, 2019).

The aim of this research is to add value to the information-sharing body of knowledge by contributing through knowledge created in exploring technology-enabled information-sharing

platforms for information-sharing and collaboration amongst academics at the institution of higher learning is studied. The knowledge will be created and developed through the views expressed by the academics in the research.

According to Myers (2013), a positivist research stance assumes that reality is separate from the researcher and the tools used. Positivism is usually associated with quantitative research from an objectivist stance assuming that reality is independent of the human mind. This philosophy assumes the use of scientific methods to construct knowledge. According to Wilson (2014), interpretivism is based on a subjectivist stance that assumes that the researcher is making sense of the social world by being part of it.

Table 2: Aspects of epistemology (Adopted from Saunders *et al.*, 2009:119)

Research philosophy Epistemology:	The researcher’s view of what constitutes acceptable knowledge
Pragmatism	“Either or both observable phenomena and subjective meanings can provide acceptable knowledge that is dependent on the research question. The focus is on practical applied research, integrating different perspectives to help interpret the data.”
Positivism	“Only observable phenomena can provide credible data and facts. The focus is on causality and law-like generalisations, reducing phenomena to simplest elements.”
Realism	“Observable phenomena provide credible data and facts. Insufficient data means inaccuracies in sensations (direct realism). Alternatively, phenomena create sensations, which are open to misinterpretation (critical realism). The focus is on explaining within a context or contexts.”
Interpretivism	“Subjective meanings and social phenomena; the focus is on the details of the situation, a reality behind these details, subjective meanings, motivating actions.”

The researcher adopted an interpretivist epistemological stance since the researcher is interpreting the data collected from the interviewees’ perspective to make claims about the perceived truth and because there are many ways of looking at the phenomena.

3.3 Research approach

Two types of approaches are outlined here: the deductive and the inductive approach.

3.3.1 Deductive approach

Silverman (2013) states that the deductive approach develops a hypothesis based on an existing theory and then uses research methods to test the hypothesis. This approach may be appropriate for a research project that compares findings with the outcomes of previous research. He further states that a deductive approach is typically associated with the positivist methodology, which provides for the development of hypotheses that then statistically test the data to an acceptable level of probability.

The deductive approach may also be used for qualitative research studies where the expectations might be derived through hypothesis testing (Saunders *et al.*, 2019). A deductive approach can be used to develop a general theory towards a new theory. In this case, the general theory is first developed and then to test the theory to create new knowledge (Mayer, 2015).

3.3.2 Inductive approach

Bryman and Bell (2011) state that the inductive approach is moving from the specific theory to the general theory. In this approach, the collected data is the starting point where the researcher tries to find patterns in the collected data. There is no framework, and the findings are derived from the collected data. An inductive approach may be seen as a process of developing new theories. However, the analysed data may also fit into an existing theory. They also indicate that the use of an inductive approach is mostly used in qualitative research, where the theory is still being developed. Using a theory as a lens to analyse data could assist the researcher by providing the constructs that can be used to organise the data. This reduces the possibility of the researchers being influenced by their own views. Qualitative data is collected with appropriate methods to then analyse it to establish patterns in the data.

For this study, an inductive approach was chosen to enable the researcher to gain in-depth insights into the views and perspectives regarding a technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning. The findings of this research study can contribute towards a body of knowledge concerning information-sharing and assist in development of policies that will promote the culture of and regulation of information-sharing in the institution of higher learning being studied.

3.4 Research strategy

The research strategy focuses on how the researcher will carry out the research. The strategy can consist of several approaches, such as experimental research, action research, case study research, interviews, surveys, or a systematic literature review (Saunders *et al.*, 2019).

3.4.1 Case study

Case study research has distinctive characteristics that make it suitable for many types of investigations and it must be used with care (Hancock, Algozzine, Lim, 2021). They further refer to the importance of case study research in information systems research to be able to apply the research findings in practice. In case study research, the researcher as the observer becomes part of the world of practice. Researchers use this in-practice knowledge through a situational inquiry process to develop new theories. Case studies in business research can be divided into three categories: explanatory, descriptive, and exploratory (Hancock *et al.*, 2021).

The research study being undertaken explores technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning and is not looking to offer a solution to the research problem. Instead, the aim is to gain deeper insights into the problem as it appears in practice. In addition, it may also uncover new areas that have not yet been researched before. The case used in this research is an institution of higher learning located in the province of the Eastern Cape.

3.4.2 Unit of analysis

Phelan (2011) describes the unit of analysis as the source from which the researcher will be collecting data with regard to the identified problem. Bengtsson (2016) describes the unit of analysis as the sample that is used for the research, and what the researcher is trying to explain with the study. For this research, the unit of analysis is an institution of higher learning located in the Eastern Cape, with four campuses in Mthatha, Butterworth, East London, and Queenstown. The study is conducted in the various Departments of Accounting of this institution and this department is represented on all four campuses.

3.4.3 Unit of observation

The unit of observation is the individual participants' information practices selected from the Department of Accounting in the various campuses.

3.4.4 Sampling

A sample is the segment of the population that is selected for investigation (Bryman, 2016). In quantitative research, the reliability of the results depend on the size of the sample and the method used to select the data. In qualitative research, a sample is also used but in such a case, the sample size may be smaller since the volume of data will be more. (McEwan, 2020).

The sample chosen for this research is non-random, purposively and conveniently selected. It is made up of the following: i) Heads of Department (HODs) (3) tasked with driving the departmental vision ii) Senior Lecturers tasked with working with their HODs to craft and execute the departmental strategy (5) iii) Academic Professor (1) concerned with promotion of research within the department iv) Lecturers (11) concerned with delivery, tuition and performing administrative tasks related to their teaching and learning.

Of the twenty (20) participants selected, fifteen (15) participants have more than 15 years of experience working as academics in institutions of higher learning, and therefore have extensive knowledge of the institution and have been involved in the sharing of information with their counterparts located in the various campuses of the institution. The participants included Heads of Departments, an academic professor, senior lecturers (academics) and lecturers.

3.5 Research Methodological Choice

Saunders *et al.* (2019) define research choices with reference to the use of quantitative and qualitative research methods, as well as the simple or complex mix of both or the use of mono methods. Qualitative research methods involve numbers and mathematical operations, while qualitative methods imply collection of a vast descriptive data. *Mono method* is used when the research is focused either on quantitative or qualitative data gathering; *mixed methods* – quantitative and qualitative methods used within the same research in order to achieve different aims and offset the constraints of the use of single method; *multi-method* choice undermines the use of both, qualitative and quantitative methods, although the research is based on of them, while the other method is auxiliary or supplementary. For this research study, a qualitative research methodology was chosen since the research is descriptive in nature.

3.6 Data collection

According to Henning, Van Rensburg and Smit (2004) there are many methods of data collection used for case study research. For this study, it was decided to collect data through interviews, using an interview guide (Appendix C) to ensure and maintain the direction of the interview. Interviews were selected as a method of data collection because of the rich and in-depth knowledge of the interviewees. However, due to the restrictions of the COVID-2019 pandemic, the data was collected online by means of semi-structured questions based on the interview guide.

The data collection process was executed as follows: Permission (Appendix A) was obtained from the Dean of the Faculty of Management Sciences (FMS) to conduct research at the institution of

higher learning. Once approval was received from the Dean, participants were contacted via email to inform them of the research and asked if they would be willing to take part in the research. Twenty (20) participants accepted the invitation and some cited network issues as reasons to decline to participate in the study. All participants were made aware of the ethical considerations, indicated on an individual consent form that needed to be signed by each participant.

3.6.1 Interviews

The interview technique has been selected as a data collection method because it is well suited to collect data from a small number of respondents to explore their views on the subject matter (Boyce & Neale, 2006). As already mentioned, interviews were replaced with semi-structured questionnaires. The original plan was to ask the participants if they were comfortable with being recorded during the interview (data collection) process, and all twenty (20) participants agreed.

3.7 Data analysis

In this research, thematic analysis approach would be used to analyse the patterns of data sourced from the literature of the various scholars who published information related to the concept being discussed. This is because thematic analysis is theoretically flexible for identifying, describing and interpreting patterns or themes within a data set in greater detail. This approach fits well with any qualitative study which attempts to explore complex issues.

According to Dawadi (2021) thematic analysis is a qualitative research method that researchers use to systematically organise and analyse complex data sets. It is a search for themes that can capture the narratives available in the account of data sets. It involves the identification of themes through careful reading and re-reading of the transcribed data. A rigorous thematic analysis approach can produce insightful and trustworthy findings. However, there is no clear guidance for early career researchers to conduct rigorous thematic analysis. Thematic analysis can be made in both deductive (top-down) and inductive (bottom-up). In the inductive analysis, the data is coded without trying to fit the themes into a pre-existing coding frame or the researcher's preconceptions about the research. So, themes emerge through the data itself without paying attention to the themes included in other studies. Themes are strongly linked to the data instead of the researcher's theoretical interest in the topic. On the other hand, the deductive approach is explicitly researcher-driven allowing the researchers to analyse the data in relation to their theoretical interest in the issues being investigated.

For the current study, the researcher used keywords to extract information from the internet and similar themes were grouped together into categories which were linked to the objectives the

study sought to achieve. The researcher made use of qualitative content analysis, as the data were collected in the form of words. All data collected were then coded, summarised, and categorised to provide the researcher with a better understanding of the data to obtain findings and to develop themes.

Dawadi (2021) added that the researcher using this approach usually begins the analysis with the themes that are identified by the researcher through a literature review. In order to maximise the overall depths of the analysis, both deductive and inductive approaches can be utilised. A deductive approach can be used as the starting point which allows analysing data in relation to the themes that have emerged through the review of literature done for the study or the research questions designed for the study. However, each of the interesting or relevant information (themes) emerging through the data can also be considered. Even the unexpected themes can be taken into consideration for a better understanding of the phenomenon in question. Therefore, a large number of inductive codes may emerge when analysing data.

The data analysed came from twenty (20) interviews that took place in which academics from different levels were interviewed. The intention was to interview more academics from all the four (4) campuses of the institution of higher learning selected to explore technology-enabled information sharing platform for collaboration and only three campuses got involved in the research study. The challenges of Covid-19, which included poor network coverage for participants reduced the scope coverage of the research caused by one campus not partaking in the study.

3.8 Trustworthiness

Trustworthiness deals with whether the findings can be trusted; whether can they be validated and whether they are reliable. This can be achieved by following the criteria of credibility, transferability, dependability, confirmability, and reflexivity (Korstjens & Moser, 2018).

3.8.1 Credibility

Korstjens and Moser (2018) define credibility as how confident one can be in the truth of the research findings. The researcher used the member check strategy by mailing the transcriptions after completion to the interviewees for validation.

3.8.2 Transferability

Korstjens and Moser (2018) define transferability as the degree to which the results can be generalised. The literature was found to have similarities with the findings (discussed in Chapter

5) and therefore it becomes evident that the findings apply not only to the case under study, but resonate with findings of other institutions of higher learning, as well as those reported in the reviewed literature. In an interpretive study, it is not possible to generalise the findings since these are connected to the specific situation within the context of the study. Although generalisation was not intended in this study, the findings could still contribute towards an improved understanding of information practices in institutions of higher learning in similar contexts.

3.8.3 Conformability

Korstjens and Moser (2018) refer to conformability as the ability of the researcher to confirm that the guidelines of qualitative research were followed. Conformability is determined by verifying the coherence of the research. In this research study, the research conformed with the guidelines of conducting qualitative research by drawing into the expectations of this inquiry. The supervisor assisted with confirmation of the authenticity of the study, which includes data, findings, interpretations, and recommendations. The analysis process was made visible by describing each step, supported with diagrams and examples based on the collected data.

3.8.4 Reflexivity

Korstjens and Moser (2018) explain that reflexivity refers to a situation in which the researcher self-reflects on how s/he influences the study with his/her own assumptions. The researcher continuously reflected on every aspect of the research process, and a short reflection is included in the final chapter.

3.9 Ethics

Resnik (2015) explains ethics as whether the behaviour of the researcher is acceptable or unacceptable guided by the agreed-upon norms of ethical behaviour. Ethical norms can be adopted at home, school, church, or any social environment where people are. When people think about ethics, they consider whether their actions are right or wrong based on acceptable behaviour. When online data is collected, then additional methodological complexities associated with data storage, security, sampling, and survey design need to be considered with traditional ethics principles such as consent, risk, privacy, anonymity, confidentiality, and autonomy (Buchanan & Hvizdak, 2009). All participants involved in the study were informed about the subject matter of the study and were assured that all information collected during the interview process will be seen as confidential. This was ensured by emailing a consent letter explaining the research and the conditions of the research to the potential participants. The participants were informed of their right to withdraw their participation and collected data at any time.

For this study, various ethical principles were considered. Consent was obtained from the Dean of Faculty of Management Sciences (Appendix A), as well as from each participant, for data collection purposes. Although the researcher received consent from the Dean of FMS and participants, no data will be published without the permission of the institution of higher learning under study.

Before the interview, the participants were made aware that they did not have to answer any question if they were uncomfortable and they also could withdraw their answers at any time. Participants were also ensured that the data collected from them would not be discussed with other colleagues.

Data collected during the literature review and the data collection process were not falsified or fabricated, and all contributors were recognised. Data collected will be kept for any inquiries that may arise in the future and the researcher will ensure that all the results/findings based on the data collected are honest.

3.10 Summary

The methodology focuses on how research is conducted, and how knowledge is gained or data is collected. In Chapter 3, the researcher discussed the research methodology followed throughout the research process, which included the research philosophy, research approach, research strategy, data collection techniques, and how the data were analysed. The chapter started by explaining the research philosophy, followed by ontology and epistemology. For this study, a subjective ontological stance was followed, as all participants of the research had their own view of the phenomenon that was investigated, while an interpretivist epistemology was adopted because there are multiple ways of looking at the phenomena under investigation.

When conducting research or investigating phenomena, several approaches or methods can be followed, including a mixed-methods, qualitative, or quantitative approach. Qualitative research is usually associated with inductive and exploratory research. With qualitative research, there is more than one way of understanding or explaining a phenomenon or the truth. Qualitative research can include action research, case study research, grounded theory, and semiotics, all of these strategies could be text-based. For this research, an exploratory case study was adopted, as it can be used to answer 'how' and 'what' research questions.

For the case study, a non-random, purposive, and convenient sample was used. The sample consisted of 20 academics in the department of Accounting in three of the four campuses of this institution of higher learning, and the selection of the sample was based on the availability of

participants, as well as their willingness to participate. To collect data from the 20 participants, permission was first obtained from the Dean of the Faculty of Management Sciences of the institution of higher learning being studied, which allowed the research to be conducted at the organisation. Data were collected by means of online data using semi-structured questionnaires. Once all data were collected from the twenty (20) participants, the data was analysed.

The researcher made use of qualitative thematic analysis, as data were in the form of words. All data collected were summarised, organised, and categorised to provide the researcher with a better understanding of the data and the development of themes. The chapter ended with a discussion on ethics, an issue considered from the beginning to the end of the research process.

In the next chapter (Chapter 4), the information about the case used for the research is discussed, together with the data analysis the findings that were formulated.

CHAPTER 4: FIELDWORK

4.1 Introduction

The previous chapter described the research methodology adopted in this study. This chapter outlines the data collection process which relied on the use of interviews to source primary data from academics of the institution of higher learning in the case study. Related literature was reviewed based on the sourcing of secondary data in line with the aims and objectives of this study. An interview guide based on the research questions was developed.

4.2 The description of the case

The case being studied is that of Walter Sisulu University (WSU) which was established on 1 July 2005 in terms of the Higher Education Act No. 101 of 1997, as amended. The new university was named in honour of an icon of the South African liberation struggle, the late Walter Max Ulyate Sisulu, who was a close comrade of Nelson Mandela. As one of six comprehensive universities in South Africa, WSU has positioned itself as a developmental university focusing on urban renewal and rural development.

It may be characterised as scientific, technological, innovative, and responsive to local community needs and the requirements of commerce, industry and the socioeconomic niche areas of national government. WSU is uniquely positioned to play a powerful role in the national government's new focus on rural development. It has over 30,000 students, of which about 1,800 live and work across four campuses with 13 delivery sites in Mthatha, Butterworth, Buffalo City (East London) and Queenstown, all in the Eastern Cape province of South Africa.

WSU aims to maintain the traditional role of a university as a centre of higher learning, where theoretical and other intellectual pursuits are combined to serve a larger and more specific role which it has defined as that of a Developmental University, acceding to the imperative of making a significant contribution to regional, national, and continental development.

Data was collected from three of the four campuses of this institution, due to the other campus not being accessible when the data collection process took place. The following figure shows the map of the Eastern Cape. The collection of the data was impacted negatively by the COVID-19 pandemic where methods other than face-to-face interviews had to be used, in line with the regulations of a state of emergency.

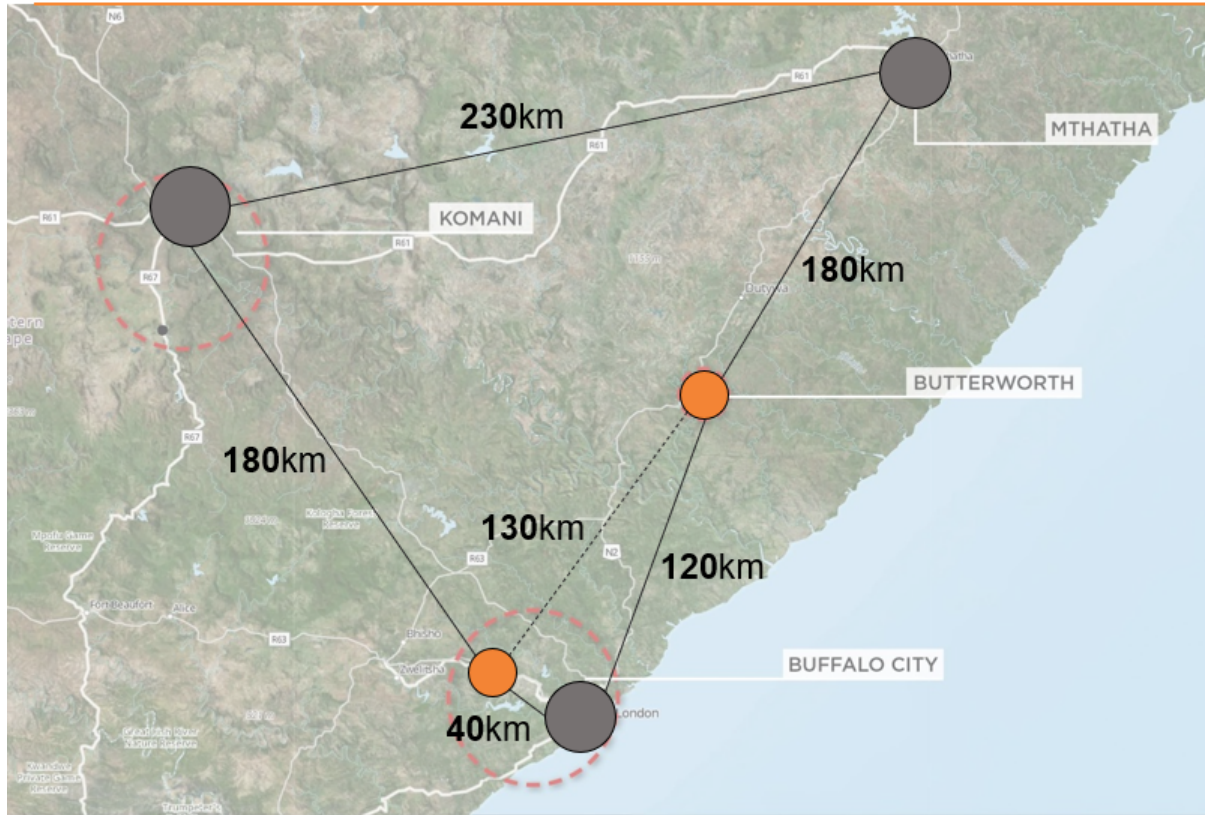


Figure 5: Location map of research sites (Adopted from Google maps,2020)

4.3 The participants

The next table (2) shows the profile of participants who took part in the study, in terms of position in the institution and years of experience in an institution of higher learning. For the purposes of confidentiality, the names, and the campuses where these participants are located are not revealed in this study. Codes have been used to refer to participants. The researcher is an academic based in the Butterworth campus of this institution.

To be able to answer the research questions, twenty (20) participants were interviewed, and their profiles are shown in Table 3.

Table 3: Profiles of interview participants

Participant Code	Position	Years of experience
Participant 1	Head of department	23 Years
Participant 2	Senior Lecturer	20 Years
Participant 3	Academic Professor	22 Years
Participant 4	Senior Lecturer	20 Years
Participant 5	Senior Lecturer	23 Years
Participant 6	Senior Lecturer	23 Years
Participant 7	Head of Department	15 Years
Participant 8	Lecturer	10 Years
Participant 9	Lecturer	15 Years
Participant 10	Senior Lecturer	18 Years
Participant 11	Lecturer	20 Years
Participant 12	Head of Department	15 Years
Participant 13	Lecturer	20 Years
Participant 14	Lecturer	20 Years
Participant 15	Lecturer	20 Years
Participant 16	Lecturer	18 Years
Participant 17	Lecturer	15 Years
Participant 18	Lecturer	10 Years
Participant 19	Lecturer	12 Years
Participant 20	Lecturer	10 Years

4.4 Data collection

4.4.1 Data collection process

The researcher piloted the study on five academics in the Department of Management studies. The aim of the pilot study was to test whether the objectives of the study were achievable and to check and correct any errors that might be found on the test data. When all the misconceptions and misunderstandings about what the study sought to achieve had been resolved, the researcher was able to conduct the study. Data was collected from 20 academics across three Departments of Accounting located in three campuses, namely at Butterworth, Queenstown and Mthatha. Interviews took place telephonically and with Microsoft Teams.

4.4.2 Data collection instruments

Research questions with their sub-questions were organised in an interview schedule prepared for interviewing of academics to achieve the objectives of the study. The following tables represents the research sub-questions, their corresponding objectives to be achieved and the methodology used for data collection.

Table 4: Research sub-questions (SRQs), objective and methodology used

RQ1: What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?		
Research sub-questions	Objective	Methods
1.1 How do academics currently obtain information for their academic work for collaboration?	To determine the ways in which information is shared among academics.	Interview semi-structured questionnaire
1.2 What approaches do academics use for information-sharing at institutions of higher learning?	To review different approaches used by academics for information-sharing at institutions of higher learning.	Interview semi-structured questionnaire
1.3 What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?	To determine the perceived barriers and challenges to using technology-enabled platforms for information-sharing.	Interview semi-structured questionnaire
RQ2. What technology-enabled information-sharing platforms are suitable for collaboration amongst academics at the institution of higher learning?		
2.1 How can collaborative information-sharing improve academic performance?	To determine how collaborative information-sharing can improve academic performance	Interview semi-structured questionnaire
2.2 What are the academics preferences for using technology to share information for collaborative work?	To determine the suitability of different technology-enabled platforms available for information-sharing at this institution of higher learning.	Interview semi-structured questionnaire
2.3 How does the Higher Education Institution promote a culture of information-sharing amongst academics?	To establish how the institution of higher promotes a culture of information-sharing amongst academics.	Interview semi-structured questionnaire

4.4.3 Identifying and recruiting participants

The recruitment of participants in this study was achieved through purposive sampling. An invitation to participate was then sent to the participants through institutional email and an

interview schedule was attached. The attachment of the schedule was carried out to prepare and familiarise the participants with the interview questions to be asked during interview. The participants were recruited on the basis that they were academics within the department of Accounting in the institution of higher learning where the research took place.

4.4.4 Entering the field

The researcher asked for permission to conduct research from the Dean of the Faculty of Management Sciences. The research consent document was sent to the relevant Dean to seek permission to conduct the study. This document serves as a formal letterhead from CPUT providing information to the participants about the researcher's supervisor, as well as the Faculty Research Ethics Committee secretary and their details. The document also provides participants with the necessary information to make enquiries about the authenticity of the invitation to partake in the study.

4.4.5 Collecting data

For this study, online interviews were used as a method of data collection guided by the interview guide. Sampling is covered extensively in the previous chapter (Chapter 3) but is included in this section to help the reader keep abreast of how it was carried out. The interview schedule lists the interview questions in the sequence that the questions were asked. Interviews were conducted to explore technology-enabled information-sharing platform for collaboration amongst academics. The researcher attached pseudo names for each interviewee to maintain the principle of confidentiality.

To collect the data for the analysis, semi-structured interviews were conducted with participants from the Department of Accounting in three of the four campuses of the institution of higher learning where the research study took place. The interview questions (IQs) were derived from Research Questions (RQs) and research sub-questions (SRQs), shown in Table 5.

Table 5: Research sub-questions and interview guide mapping

Research sub-questions	Corresponding Interview Questions
1.1 What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?	1.1.1 Please provide me with three examples where you have recently shared information to collaborate with others What information was needed? (Information need) What information object? How did you search for it? (Seeking/sending) Why did you need the information? (purpose) Who could assist you? (collaborator) 1.1.7 How was the sharing facilitated? (platform)
1.2 What are some approaches academics use for information-sharing at institutions of higher learning?	1.2 What are some approaches academics use for information-sharing at institutions of higher learning?
1.3 What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?	1.3 Please identify barriers, challenges, and benefits that, in your opinion, could influence the experience of academics using technology-enabled information-sharing platforms?
2.1 How can collaborative information-sharing improve academic performance?	2.1.1 What is your opinion on the potential influence of collaborative information-sharing on academic performance? 2.1.2 How, in your opinion, can information shared with other academics, assist with performing a specific task?
2.2 What are the academics, preferences for using technology to share information for collaborative work?	2.2 What would be your suggestions for suitable technology platforms for information-sharing amongst academics to increase collaboration?
2.3 How does the Higher Education Institution promote a culture of information-sharing amongst academics?	2.3 What do you suggest that Higher Education Institutions could do to promote a culture amongst academics?

4.4.6 Reflecting on the data collection process

The researcher started by explaining what the study was about and the contribution that the researcher was hoping to make by undertaking this study. Participants were informed about the ethical principles that guided the research study and that no participant was forced to partake in the study. Issues of confidentiality and anonymity were explained, as was the fact that no incentives should be expected by participants. A consent statement was read to each participant

to indicate that they gave consent to participate in this study. The researcher took notes during the interview to capture the insights and views of the participants.

Twenty (20) academics (participants) were interviewed, with three (3) Heads of Department, five (5) senior lecturers, one (1) academic professor and eleven (11) lecturers.

4.5 Data analysis process

The data analysis process is discussed next.

4.5.1 Transcribing of interview data

The researcher sought permission from the interviewees to record their interviews on the diary that the researcher used to capture participants' views verbatim. The views and insights of interviewees were captured verbatim. During the transcription process, the researcher verified all the notes taken to ensure that the views of each interviewee were captured correctly, and that all information was captured in line with the achievement of the goals set out for the study.

Table 6: Extract of interview transcriptions as an example

IQ 1.1.1: Please provide me with three examples where you have recently shared information to collaborate with others
Participant 10: The nature of my work requires that I set up examination questions, so I have question papers with other academics teaching the same subject. I shared the questions through email because we had to prepare for the upcoming examinations.
Secondly, I am a senior academic member of the department and therefore was involved in crafting of a departmental strategy when I had to search institution's website to align departmental goals with that of the institution. That information was shared with other senior members involved in the crafting of the vision through email.
Thirdly, I had to conduct a research workshop to assist academics registered for their respective master's and Doctoral programmes. I had to solicit information from Google Scholar and prepare documents for those academics and would later share them through email.
IQ 2.1: What is your opinion on the potential influence of collaborative information-sharing on academic performance?
Participant 10: The sharing of information assists us academics in our executing of tasks, as through the shared information more knowledge is gained. Secondly, the novice academics have their expertise developed thus sharpening their faculty and in turn improve their content delivery.

4.5.2 Management of collected research data

Once the interviews were concluded, the data for each participant was collected and each response properly labelled with the participant's code so as to locate it when needed. In some cases, the researcher captured the answers and made notes to create a document for each participant for their responses. In other cases, the participants preferred to type the answers for the questions directly into the Microsoft Word questionnaire provided that served as the interview guide. All the responses were then combined into a spreadsheet, with the code assigned to the research participant, to be able to link back to the source data. The responses were then grouped per question as preparation for the coding process.

4.5.3 Data coding

For this study, latent coding was applied in which similar themes were derived from the categories. These themes were grouped together in Excel spreadsheet for further analysis, using the sorting function and creating pivot tables. The researcher looked for common phrases that have the same meaning.

4.5.4 Themes

In analysing data, the researcher followed a layered approach. The first layer of analysis involved a qualitative research method in which data from interviews was analysed to gain insight into the research subject. The next layer involved identifying common themes within the data.

Several themes were identified by applying latent coding. The interview transcripts were analysed using this technique and further themes were identified.

4.5.5 Categories

The thematic method of grouping and categorising of transcribed data, as described in Chapter 3 and applied to the interview data script, yielded certain categories (See Table 4). The categorisation of data was carried out by grouping keywords and phrases with similar meanings together and placing them into complementary categories.

4.6 Thematic findings

In the following section, the responses from the respondents that have been collected during the research process are discussed. Based on the answers of 20 respondents, findings have been

drawn from each interview question. The research questions, research sub-questions and linked interview questions are presented in Table 7.

Table 7: The alignment between research sub-questions, interview questions and key concepts.

Research question	Research sub-question	Interview question	Key concept	
RQ1: How do academics currently share information during their collaborations?	1.1	What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?		
		How do academics currently obtain information for their academic work for collaboration?		
		1 Example of information-sharing.	Situation	
		2 What information was needed?	Information need	
		3 What information?	Information object	
		4 How did you search for it?	Information seeking/sending	
		5 Why did you need the information?	Information purpose	
		6 Who could assist you?	Information collaboration	
		7 How was the sharing facilitated?	Information platform	
		1.2	What approaches do academics use for information-sharing of an institution of higher learning?	
	8	What approaches do academics use for information-sharing of an institution of higher learning?	8 Approaches	
RQ2: What technology-enabled information-sharing platforms are suitable for collaboration amongst academics at the institution of higher learning?	1.3	What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?		
	9	Please identify barriers, challenges, and benefits that in your opinion could influence the experience of academics using technology-enabled information-sharing platforms.	9 Technology influences	
		10	What technology platforms do you suggest as suitable for information-sharing in an academic institution? Please also indicate the reason for your choice.	10 Suitable platforms
		SRQ2.1	How can collaborative information-sharing improve academic performance?	
		11	What is your opinion on the potential influence of collaborative information-sharing on academic performance?	11 Academic performance
		SRQ 2.2	What are the academics' preferences for using technology to share information for collaborative work?	
		12	What would be your suggestions for suitable technology platforms for information-sharing amongst academics to increase collaboration?	12 Increased collaboration
	SRQ 2.3	How does the Higher Education Institution promote a culture of information-sharing amongst academics?		
	13	What do you suggest that Higher Education Institutions could do to promote a culture amongst academics?	13 Information culture	

A total of thirteen (13) interview questions were asked. Each interview was conducted, and the average duration was one hour, as per the interview guide that the researcher followed. The

keywords were identified by summarising related data relevant to the research questions answered, in line with the research objectives. During interviews, some interview questions produced and elicited varying answers, which were subsequently grouped according to the similarity of keywords under different categories. A total of 13 keywords were identified and used to summarise the data. The key concepts were derived from the literature to guide the data collection, and each will be discussed next, as they align to the themes.

4.6.1 Information practices situation

In the following table, an example of the codes for Interview Question 1 is presented, as the participants provided examples of situations where they have used information as part of their work practices. Each participant was asked to provide three examples. The examples were categorised, and seven categories were identified, namely: administration, collaboration, development, management, quality, research, and teaching.

Table 8: Example of coding

Codes	Categories							Total Codes	%
	Admini- stration	Collabo- ration	Develop- ment	Management	Quality	Research	Teaching		
Assessment							8	8	13
Audit					1			1	2
Collaboration		1						1	2
Documentation	5				2			7	12
Management				2				2	3
Meeting		18						18	30
Research						2		2	3
Review							3	3	5
SAQA forms					1			1	2
Sharing		4						4	7
Supervision						1		1	2
Teaching							5	5	8
Training			6					6	10
Workshop		1						1	2
Grand Total	5	24	6	2	4	3	16	60	
%	8%	40%	10%	3%	7%	5%	27%		

From the above table, it is evident that most respondents (30%) were involved in a meeting situation, in which they had to share information and collaborate with each other. The only category that is associated with management is collaboration. It therefore seems that meetings are seen as collaboration opportunities.

As an academic, we sometimes have to attend various meetings and have to share information to make certain decisions.

Secondly, assessment was the second most common example in which respondents (13%) claimed to have been involved in the sharing of information. Some respondents (10%) indicated that they had to share information when there were involved in training.

Since the nature of our work requires that we perform assessments, we then have to share information about the questions that we set.

I had to conduct Wise-Up training to assist in capacitation of my colleagues.

Other respondents had shared information in various situations which included: documentation (12%), teaching (8%), sharing (7%), review (5%), management (3%), research (3%, audit (2%), collaboration (2%), SAQA forms (2%), workshop (2%) and supervision (2%).

I shared information when we had to prepare documentation.

When I had to do subject review with other academics.

... shared information for teaching purposes.

The category with the highest response (40%) is collaboration, which includes workshops and meetings for information sharing. The second highest category is teaching (27%) with associated codes assessment, review, and teaching.

The finding related to the situation examples is that information is used for the typical tasks associated with academics' work, with collaboration being indicated.

4.6.2 Information needs of academics

When the participants were asked to indicate the information need for each example situation provided, the following needs were indicated:

Table 9: Information needs codes

Information needs codes	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Research	Teaching	Total	%
Article		1						1	1,7
Assessment questions		1	1		1		4	7	11,7
benchmark				1				1	1,7
Bidding information		1						1	1,7
Documents	2	5	1	1		1	2	12	20,0
Framework		3						3	5,0

Learner guide		2	1		1			4	6,7
Lecture notes			1					1	1,7
Lecture slides							1	1	1,7
Manual		2					2	4	6,7
Minutes		1			1		1	3	5,0
Notes	1	1						2	3,3
Questions							1	1	1,7
Research	1	2				2		5	8,3
Statistics		1						1	1,7
Strategy		1			1			2	3,3
Subject information		1						1	1,7
Syllabus		2	2				2	6	10,0
Vision statement	1						3	4	6,7
Grand Total	5	24	6	2	4	3	16	60	

The coding of the needs resulted in 19 codes, and these were mapped to the seven categories derived from the examples.

Information needs findings:

The above table (Table 9) indicates that most respondents (20%) need to share documents in their collaboration with other academics. The sharing of these documents is dependent on various circumstances that the respondents were involved in. Secondly, some respondents said that they needed to share assessment questions (11,7%) and syllabi (10%) with their colleagues.

The information needed for our collaboration were the documents for enabling different situation as needed by my line of work.

Since my line of work requires assessing students in their respective subjects, I had to set questions for assessment.

Other respondents had varying information needs that included articles (2%), benchmark (2%), bidding information (2%), framework (3%), learner guide (7%), lecture notes (2% and lecture slides (2%) amongst others.

The information needed was bidding information for a service SETA funded programme.

The finding for the information need is that academics mostly need to share documents as part of their practice.

4.6.3 Information object

Eight codes were derived from the information objects indicated in the responses and these were mapped to the seven categories based on the examples given.

Table 10: Information object code

Information Object Codes	Example categories							Total	%
	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Research	Teaching		
Digital document		4			2		3	9	15
Google form	2	3			2		1	8	13
Online form	1			1				2	3
PDF document	1	1						2	3
PowerPoint slides		2	1					3	5
Report			1					1	2
Spreadsheet			1					1	2
Word document	1	14	3	1		3	12	34	57
Grand Total	5	24	6	2	4	3	16	60	100

The information object used the most was Word documents (57%). Digital documents were indicated the second most common (15%) as examples of information objects followed by Google Forms (13%). The information objects indicated appear mostly in the collaboration category (40%) and within that category Word documents were indicated as being used the most (14 occurrences).

The finding relating to the information object is that Word documents are still used the most as part of collaborating with other colleagues and for teaching purposes.

4.6.4 Information seeking/sending

Seventeen codes were derived from the sixty responses for the examples of information-seeking provided. These were allocated to the seven categories derived for the examples provided.

Table 11: Seeking code

Seeking codes	Example categories							Total	%
	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Researc h	Teachin g		
Benchmarking		2			1		1	4	6,7
Extract faculty information			1				3	4	6,7
Extract from archives		3		1				4	6,7
Extract from subject file	1						1	2	3,3

Extract previous test information	1	2		1			1	5	8,3
Request from colleagues		2	1			1		4	6,7
Retrieve information		2						2	3,3
Search university website	1	6	2		2		4	15	25,0
Upload document	1	2				2	1	6	10,0
Use email		2						2	3,3
Use external websites					1			1	1,7
Use external websites		1	1				1	3	5,0
Use Google docs		1						1	1,7
Use Google Scholar		1	1				1	3	5,0
Use question banks							1	1	1,7
Use research websites	1						1	2	3,3
Use WiseUp							1	1	1,7
Grand Total	5	24	6	2	4	3	16	60	

Information-seeking findings:

The above table indicates that most respondents (25%) search the university website to get information to be shared with one another. Some respondents (10%) say that they uploaded documents and shared them with other academics to enable collaboration.

I always search information on the university's website to achieve my various purposes.

I have to respond to an information need from another academic, I upload the requested document and sent it through.

Other respondents indicated that they seek information by extracting previous test questions from files, requesting from colleagues (7%), using benchmarking (7%), extracting information from faculty brochures (7%), and extracting information from archives (7%).

The finding for information seeking is that various seeking strategies are used to find the information needed.

4.6.5 Purposes of information

Twenty-four codes were allocated to the sixty examples provided and mapped to the seven categories indicated for the examples.

Table 12: Purpose code

Example categories									
Purpose codes	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Research	Teaching	Total	%
Audit syllabus		1						1	1,7
Benchmarking		1			1		1	3	5,0
Co-supervise							1	1	1,7
Decision making							2	2	3,3
Department vision		2	1	1				4	6,7
Documents accreditation	1	1		1			1	4	6,7
Guest lecturing	1							1	1,7
Implementing online teaching							1	1	1,7
Lecture preparation		2	1					3	5,0
Mitigation of problems		1						1	1,7
Moving department forward						1		1	1,7
Online teaching		3	1					4	6,7
Prepare syllabus		2	1		1		1	5	8,3
Programme accreditation		3			1		3	7	11,7
Programme re-circulation	1	1						2	3,3
Proposal development							1	1	1,7
Research reporting						1		1	1,7
Research workshop		1						1	1,7
Set exam paper	1	4	1		1	1		8	13,3
Source funding							1	1	1,7
Staff development		1	1					2	3,3
Staff training	1	1					2	4	6,7
Strategy implementation							1	1	1,7
Syllabus alignment							1	1	1,7
Grand Total	5	24	6	2	4	3	16	60	100,0

Information purpose findings:

The above table (Table 12) indicates the purpose of information needed to be shared in different situations by academics in their collaborative work. Most of the respondents (13,3%) needed

information for the purposes of setting examination papers. It is also cited that the second most common information need was for programme accreditation (11,7%).

Being an academic requires that we assess students and hence we always require previous questions to set question papers for the next examinations.

Our programmes have just undergone accreditation, which requires that will fill forms from SAQA.

Some academics indicated that the purpose of their need for information included preparation of syllabus (8,3%), crafting the departmental vision (6,7%), online teaching (6,7%) and staff training (6,7%) among others.

Being part of the management, information was needed in the crafting of the vision statement for the department.

We needed to share information for development of assessment framework in preparation for online teaching that was to kick off due to the COVID-19 pandemic.

The findings for the information use purposes are that there are various purposes that are mostly associated with collaboration and teaching.

4.6.6 Persons sharing information for collaboration

Seven collaboration roles were coded from the sixty examples and mapped to the seven categories.

Table 13: Collaborator code

Collaboration code	Example categories							Total	%
	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Research	Teaching		
Academics	2	8	2	2	1	1	6	22	37
Colleague		7	2		1		2	12	20
Colleague from another campus		1					1	2	3
Head of department	2	6	1		2	2	2	15	25
Lecturer	1	2	1				3	7	12
Other academics							1	1	2
Research Champion							1	1	2
Grand Total	5	24	6	2	4	3	16	60	100

Collaboration findings:

Table 13 presents the various people involved in collaboration, as indicated by the respondents. The respondents (37%) indicate that they collaborated with academics from within their department in their respective campuses. The second most common collaboration took place between respondents (25%) and the head of department, and their involvement came about as a result of them being members of departmental management teams. Some respondents (20%) had collaborated with their colleagues who were not within their departments. The collaboration was either between a departmental secretary or a person providing technical support.

As the academics, we sometimes collaborate and share subject related information like learner guides.

I am the member of the departmental management team (DMT) and being a senior member in the department, I always have to collaborate with the Head of Department to address issues in the department.

I have been involved in collaboration with a colleague, who provides secretarial support in the department. The nature of collaboration took place when I requested class schedules for the capturing of test marks for students.

Other respondents indicated that they had been involved in information-sharing and collaborated with a colleague from another campus (3%), researcher champions (2%) and other academics (2%).

I have in the past requested for information from a colleague in another campus. I wanted previous question papers to set a test.

I have approached a senior academic who is also a researcher champion to assist me with proposal writing.

Since our institution is a multicampus institution, we have to collaborate with other colleagues in other campuses to discuss subject matters concerning the same subjects that we teach.

The finding for the information collaboration is that sharing of information is mostly between academics within the same department or at the same location.

4.6.7 Current information-sharing platform

Only three platform types were indicated, of which email was used most often for sharing information (80%).

Table 14: Platform codes

	Example categories								
Platform code	Admini- stration	Collabo- ration	Develop- ment	Manage- ment	Quality	Research	Teaching	Total	%
Blackboard		1					1	2	3
email	4	21	4	2	4	3	10	48	80
MS Teams	1	2	2				5	10	17
Grand Total	5	24	6	2	4	3	16	60	100

Information-sharing platform findings:

Most of the respondents (25%) used Blackboard and email (25%) to share information with each other. Microsoft Teams (20%) was the second most commonly used information-sharing platform that academics preferred for the sharing of information.

Most of the time, I prefer to use email to share information with other academics.

I have opted to use Blackboard to share information with my students since information is shared with many students simultaneously.

Microsoft Teams is the new technology platform that enables the sharing information through virtual meetings without having to have physical contact.

Other technology platforms preferred by respondents were Facebook (15%) and WhatsApp (15%).

I would suggest Facebook as a technology platform to share information. This is because it is one of the widely used platforms.

WhatsApp allows for sharing information and groups can be created so that academics with similar interests can discuss their topics of interest.

The finding for the current information-sharing platform used by academics is still predominantly email.

4.6.8 Approaches to information-sharing

Table 15: Approach code

Approach code	Count of Approaches code	Percentage
Dropbox	9	43%
email	9	43%
face-to-face	3	14%
Grand Total	21	

The 21 responses were summarised into three code groups, namely Dropbox (43%), email (43%) and face-to-face (14%).

Information-sharing platform findings:

The above table indicates that respondents preferred to use Dropbox (43%) and email (43%) as the best approaches for sharing of information in their institution of higher learning.

For I prefer to use Dropbox as an approach to information-sharing.

Some of us have been exposed to using email and as such I continually use email to share information with other academics.

Other respondents (14%) used face-to-face interactions to share information with each other.

Whilst technology related approaches are the best, I still prefer face to face because of its advantage of body language.

The finding based on the approaches used is that the academics' preference was to collaborate via electronic means, although this is probably because this study was conducted during the pandemic, where face-to-face meetings were not possible.

4.6.9 Factors that influence academics' experience of using technology enabled information-sharing platforms

The respondents indicated 58 barriers, challenges and benefits that could influence their experience of using technology-enabled information-sharing platforms. These responses were coded and categorised into 13 categories, as well as an indication for each category whether the experiences were positive or negative.

Table 16: Barriers and enablers

Categories	Count	Percentage	Percentage positive versus negative
Access	9	16%	
Negative	9		
Collaboration and sharing	9	16%	
Negative	2		22%
Positive	7		78%
Empower	2	3%	
Positive	2		
Group conversion	1	2%	
Positive	1		
Hardware	10	17%	
Negative	8		80%
Positive	2		20%
Platform	1	2%	
Positive	1		
Resistance to change	2	3%	
Negative	2		
Skills	4	7%	
Negative	4		
Support	2	3%	
Negative	2		
Technology	3	5%	
Positive	3		
Training	5	9%	
Negative	4		80%
Positive	1		20%
Use	8	14%	
Negative	5		62.5%
Positive	3		37.5%
Work approach	2	3%	
Positive	2		
Grand Total	58	100%	

The following categories were only experienced negatively, namely: access, resistance to change, skills and support, and represent 29% of the responses. The categories associated with only positive experiences were empower, group conversion, platform and technology, and

represented 15% of the responses. The categories that have both positive and negative experiences are collaboration and sharing (predominantly positive at 78%); whereas the others are predominantly experienced negatively: hardware (80%); training (80%); and use (62,5%). This mixed experience represents 56% of the responses.

Factors influencing the experience findings:

The above table shows (Table 16) that most respondents identified problems with hardware, (17%) lack of access (16%) and lack of training in the use of technologies ((9%) as barriers towards information-sharing. The identified barriers negatively influenced the respondents' experience of using technology-enabled information-sharing platforms. Whilst there are shortcomings in the respondents' experiences in using these platforms, there are gains, as well, notably from provision of training as an enabler of using these platforms.

Overall, the percentage gap between barriers and enablers indicate that 22% felt that collaboration and information-sharing were barriers and 78% viewed them as enablers in the use of technology platforms. This aspect is a 'soft' or human issue and might be caused by the fact that collaboration is not administratively regulated and that there is no information-sharing culture. Most respondents (80%) felt that lack of training was restricting their use of technology and an enabled information-sharing platform and 20% supported the view that training was instrumental in their experience in using these platforms.

Another issue of comparison is technology which might also translate to what respondents need to be able to share information for collaboration. Lastly, the use of these platforms was impeded by lack of IT skills, and 62.5% of respondents reported that lacking IT skills was indeed a barrier to using technology platforms for information-sharing. 32.5% talked positively about such skills driving collaboration.

The finding for the factors influencing the experience is that most of the factors that influence the experience of technology-enabled information-sharing display a mixture of positive and negative experiences that are mostly negative associated with training, hardware, and use.

4.6.10 Information-sharing platforms for the future

The platform uses in future were indicated as Blackboard and email, with both representing 25% each of the responses. This is followed by MS Teams (20%) Facebook, and WhatsApp, with 15% each. The change with an increased use of Blackboard and the consideration of using Facebook and WhatsApp could be the result of the pandemic where such platforms replaced face-to-face collaborations.

Table 17: Suitable platform codes

Technology platform codes	Count of Technology platform code	%	Current use %
Blackboard	5	25%	3%
Email	5	25%	80%
Facebook	3	15%	0%
Teams	4	20%	17%
WhatsApp	3	15%	0%
Grand Total	20	100%	100%

Future information-sharing platform findings:

There is a substantial increase in the use of Blackboard and WhatsApp, in addition to the existing use of email. The change to more online collaborative platforms is probably linked to the pandemic, where usual practices were no longer possible. The work of academics had to continue, and they were forced to use online platforms to continue with teaching and research activities.

The finding related to this theme is that there is a significant shift towards using online platforms that is probably due to the restrictions of the pandemic where work practices had to adapt to deal with the teaching and research work as a new “normal.”

4.6.11 Impact of collaborative information-sharing on academic performance

The responses for the impact of collaborative information-sharing on academic performance resulted in 13 codes from the 28 responses.

Table 18: Collaborator opinion code

Collaborator opinion code	Count of Collaborative opinion code	Percentage
Achieve institutional goals	1	4%
Boost morale	2	7%
Continued staff improvement	1	4%
Enhances task execution	9	32%
Idea generation	1	4%
Improved collaboration	1	4%
Improved performance	2	7%
Improved productivity	4	14%
Improved work relations	3	11%
Increased knowledge	1	4%

Knowledge transfer	1	4%
Problem solving	1	4%
Realise department goals	1	4%
Grand Total	28	

Impact of collaborative information-sharing on academic performance findings:

The above table shows that most respondents (32%) believed that collaborative information-sharing had a potential of enhancing task execution to improve academic performance in their institution of higher learning. Some respondents believed that collaborated information results in improved productivity (14%) and improved work relations (11%).

Task execution will be improved.

Collaborated information-sharing improves productivity.

Work relations are improved when there is information-sharing and collaboration.

Other respondents indicate that collaboration morale of academic is boosted (7%) and their performance is improved (7%).

Academic morale is boosted when there is collaboration.

Collaboration results in improved performance.

The remainder of respondents are of the opinion that collaborated information-sharing results in achievement of institutional goals (4%), continued staff improvement (4%), idea generation (4%), improved collaboration (4%), knowledge transfer (4%), departmental goal realisation (4%) and problem solving (4%).

The finding related to collaborative information-sharing on academic performance is that this could enhance their execution of tasks.

4.6.12 Promotion of higher education information culture

Eleven codes were derived from the twenty (20) responses to this question about promoting an information-sharing culture for higher education (HE). The two that received the most responses are the need to develop policies for an information culture (23%) and the need for an information-sharing awareness programme (23%). It was also reported that an information-sharing culture can be promoted through induction programmes (14%).

Table 19: HE Information culture codes

HE Information culture codes	Count of HE Information culture code	Percentage
Develop policies for information collaboration	5	23%
Enforce collegiality	1	5%
Enforce common assessments	1	5%
Enforce information-sharing culture	2	9%
Enforce standard operating procedures	1	5%
Include information-sharing in all communication	1	5%
Incorporate information-sharing in institutional strategic vision	1	5%
Information-sharing awareness programmes	5	23%
Link information-sharing to institutional goals	1	5%
Regulate administratively	1	5%
Through induction programmes	3	14%
Grand Total	22	

Information-sharing culture findings:

From the above table (Table 19) most respondents (23%) indicated that firstly, policies needed to be developed to instil a culture of information-sharing in an institute of higher education.

Higher education institutions could develop policies that should guide culture of information-sharing amongst their academics.

Secondly, they indicated (23%) that information-sharing awareness programmes are needed. Some respondents (14%) also indicated that information awareness should be included in induction programmes.

Introduce programmes that will emphasise the importance of information-sharing culture.

Although some respondents suggested that information-sharing should be enforced (9%) through collegiality (5%), common assessments (5%); be included in all communication (5%); making information-sharing explicit in the institutional strategic vision (5%) linked to institutional goals (5%) and be regulated administratively (5%) these represented a total of 44% of the responses.

The institution could promote culture of information-sharing by enforcing common tests and other assessments.

Enforce information-sharing culture to its employees.

Information-sharing culture can be promoted through emphasis on its importance in realising institutional goals.

The finding relating to the promotion of an information-sharing culture is that policies are needed to guide an awareness of information-sharing, as well as through awareness programmes and by including this in induction programmes.

4.6.13 Summary of key findings

Chapter 4 provided a background of the case used for research, hereinafter referred to as Walter Sisulu University. The case being studied is that of Walter Sisulu University (WSU) which was established on 1 July 2005 in terms of the amended Higher Education Act No. 101 of 1997. The new university was named in honour of Walter Max Ulyate Sisulu, also a close friend to Nelson Mandela, who is an icon of the South African liberation struggle. As one of six comprehensive universities in South Africa, WSU has positioned itself as a developmental university focusing on urban renewal and rural development.

For this research study, data was collected from the academics employed within the Department of Accounting under the Faculty of Management Sciences. This department is spread across four campuses based in Mthatha, Butterworth, Queenstown, and East London. The participants in this study included Heads of Departments (3), academic professor (1), senior lecturers (5) and lecturers (11) based in three of the four campuses of this university. Due to lockdown restrictions caused by the COVID-19 pandemic, interviews were conducted using either Microsoft Teams or telephonically.

CHAPTER 5: DISCUSSION

5.1 Introduction

In this chapter, the findings from Chapter 4 are discussed based on the analysis of the research data collected. The discussion of findings is based on the comparison of related findings to the findings of literature review of the previous research. The need to compare findings of this research and that of literature from previous research is informed by the desire of the researcher to provide clarification of findings on the subject being explored in the research study.

The first part of Chapter 5 presents the emerging themes from the categorisation of the research data. The second part presents the answers to the research questions.

5.2 Discussion of themes

The section outlined the findings about technology-enabled information-sharing platforms for collaboration amongst academics. Twelve themes emerging from the study have been identified and are presented in the next sections.

5.2.1 Information practice situation of academics

The information practices situation was a major theme in this study, and other themes evolved out of the practices by the academics of the institution of higher learning being explored. The different information practices that required the sharing of information were informed by the academic functions, as mandated in the employment contracts of the participants of this study. Interviewed academics had been involved in various meeting situations, which included subject meetings, departmental board meetings and faculty executive meetings. Sometimes the variations of these meetings were also informed by the participants' academic positions. In this regard, conducting meetings requires the circulation of meeting agenda and minutes of the previous meeting, and requires that decisions be taken.

As an academic, we sometimes have to attend various meetings and have to share information to make certain decisions. [P4]

This means that academics teaching the same subjects had to share syllabus information and question papers so that they could conduct assessments. Another information practice situation found to be prevalent amongst academics was teaching and learning, which required that information be shared in terms of the syllabus information. This is considered as the main function or practice that characterised academics. In this situation, academics share information amongst themselves, and this sharing also extends to the students to enable teaching and learning.

The participants indicated that:

I shared information when we had to prepare documentation. [P3]

When I had to do subject review with other academic.” [P1]

...shared information for teaching purposes. [P9]

There seem to be similarities in the findings of both literature and that of the current study with respect to the information practice situation, where information seeking, sharing, and use were found to be the core information practice activities, based on a literature review carried out by Zhong *et al.* (2022).

The findings are congruent in that both reveal that the various information practices resulted in information needs that vary. This means that these information practice situations have implications on the type of information needs academics have, which is discussed next as Theme 2.

5.2.2 Information needs of academics

In Chapter 2, the academic roles were discussed with reference to their interaction with information. An academic has multiple functions at their institution of higher learning. The current research data also illustrates the various situations that academics were involved in that warranted the sharing of information. These situations were informed by the academic functions they perform. Firstly, they must be involved with teaching students and also engage with other researchers. This means that the academic must have insight into his subject field and its practices. Many academics are also learners improving their own qualifications. Secondly, the academic as a scholar is involved with creating, manipulating, and using information. Academics sharing information are central to the entire process of scholarly communication (Van Zijl, 2005). Thirdly, academics are also expected to conduct research. It was found that academics at universities of technology, are less involved with scholarly communication and research than are those at established South African universities (Van Zijl, 2005). Research productivity is evaluated based on the researcher’s motivation, measures of research performance, and incentives to do more research (Masinde & Coetzee, 2021).

The various roles and functions of the academic give rise to various information needs, which will be carefully examined in this chapter. In recent years, a great deal of research has been carried out about the needs of academics, researchers, and scholars in institutions of higher learning (Afzal, 2017). For this reason, the findings of this chapter are based on a literature study. This

research study discovered the various information needs, as discussed in the previous chapter (Chapter 4).

During the interview, most participants indicated that,

The information needed for our collaboration were the documents for enabling different situation as needed by my line of work. [P1]

Since my line of work requires assessing students in their respective subjects, I had to set questions for assessment. [P8]

Findings from the literature review indicate that information needs of academics are informed by various information practice situations. However, more research is needed on the history of information needs by focusing on the theoretical underpinnings of information needs (Afzal, 2017).

5.2.3 Information seeking and sending

This theme emanates from the interview question that sought to establish how the academics share information, including searching and sending behaviours. As was previously discussed in the theme of information needs related to academic roles, the choice of information sources used for information-sharing amongst academics involved in collaboration is informed by the situation, as detailed in the information practice situation theme. The posed question in respect of this theme is concerned with academics seeking and sharing information during their information practice situations.

In respect of the current study, the participants' choice patterns regarding information sources reveals that they preferred more general web sources to meet their information needs. Nevertheless, both university websites and e-resources significantly meet participants' information needs under the digital transforming environment of the institution of higher learning being explored in this study. For seeking and sending of information, as informed by their various information needs, the academics involved in collaborative information-sharing preferred searching the university intranet, retrieving information from online databases, and using the Google Scholar search engine for the purposes of fulfilling their information needs.

During interview, one participant said,

I always search information on the university's website to achieve my various purposes. [P3]

The assertion by participants of the current research study is aligned with Sultana's (2016) report that online databases and electronic journals are both used in seeking information for teaching

and research. Online databases are hosted on websites and can be accessed using the internet, usually through a web browser. Some online databases are free, while others can be accessed upon payment of a monthly subscription fee. E-journals are scholarly journals that can be accessed online and can be downloaded freely or upon payment of the required subscription. The findings confirm Pwadura *et al.*'s (2018) view that higher education is knowledge-driven and depends on relevant information.

5.2.4 Purpose of information-sharing

According to Pontis, Blandford, Greifeneder, Attalla and Neal (2017) conducting and delivering up-to-date research is key to academic work but keeping up-to-date information is more challenging: researchers must locate relevant information within a body of literature that is growing by millions of new articles per year. Many researchers feel that they do not find all the information on the topic of which they are searching.

Furthermore, they report that academics seek and interact with information every day to find new sources, expand existing knowledge, or for inspiration. The vast amount of information on the web can challenge those searching processes. For people at the outset of their academic careers, those shifting fields, or those engaging in interdisciplinary research, the identification of highly relevant information can be particularly challenging.

This research study reports that academics had varying information practices situations in which they were involved and established that each information practice situation led to varying information needs of academics. This theme established that information needs were dependent on the purposes of information-sharing, such that the interview question posed to academics sought to establish the purpose of needed information for sharing. The academics interviewed detailed varying purposes, which included setting of examination purposes, programme accreditation and preparation of teaching and learning, amongst others.

During the interview process, some academics highlighted that:

Being an academic requires that we assess students and hence we always require previous questions to set question papers for the next examinations. [P13]

Our programmes have just undergone accreditation which requires that will fill forms from SAQA. [P3]

Being part of the management, information was needed in the crafting of the vision statement for the department. [P12]

We needed to share information for development of assessment framework in preparation for online teaching that was to kick-off due to COVID-19 pandemic. [P4]

It is therefore important to note the alignment of this theme with other themes, as it provides reasons for sharing of information and its development links with situations (information practices) that called for determination of information needs using different approaches to sharing information.

As with the academic function of conducting research, some participants indicated that they shared information regarding proposal development and that the department they were employed in was continuously arranging research workshops to help push research culture, as was informed by the need to meet the institutional area of research.

It follows from the above that the academics had formed a community of practice where information-sharing was promoted as they form relationships aligned to a clear purpose (Valenti & Sutton, 2020).

5.2.5 Persons sharing information

The development of this theme was informed by the interview question that sought to find out with whom the academics shared information. This was in line with the research sub-question aimed at establishing how academics were sharing information. Whilst the central or main theme is the information practices situation, it links with the information needs theme and, due to varying information needs, a determination of who shares information is made. This assertion is affirmed by literature studies, which indicate that researchers and academics constitute the most scholarly of information users who have sophisticated information needs. This must lead to careful building of collections, and their categorisation is based on their information needs (Yang & Maxwell, 2011).

In respect of the current research study, the findings showed that the various participants were involved in information-sharing and that most of the participants claimed to have collaborated with academics from within their department in their respective campuses. This was mainly informed by the fact that as academics, there was a need to share information for departmental meetings and the information practices situation, which required varying information needs. Among the participants were heads of departments, who had to share information amongst themselves, and their information needs included institutional policies and teaching and learning needs for driving e-learning necessitated by the pandemic.

During interviews, academics indicated that:

As the academics, we sometimes collaborate and share subject related information like learner guides. [P8]

I am the member of the departmental management team (DMT) and being a senior member in the department, I always have to collaborate with the Head of Department to address issues in the department. [P4]

I have been involved in collaboration with a colleague, who provides secretarial support in the department. The nature of collaboration took place when I requested class schedules for the capturing of test marks for students. [P14]

The sharing of information can eliminate miscommunication and improve an understanding of doing work that also leads to cooperation between colleagues and departments (Salleh *et al.*, 2020). The above examples confirm the benefits indicated by Salleh *et al.* (2020).

Some academics also indicated that that they had been involved in information-sharing and collaborated with colleagues from another campus, researcher champions and other academics.

I have in the past requested for information from a colleague in another campus. I wanted previous question papers to set a test. [P16]

I have approached a senior academic who is also a researcher champion to assist me with proposal writing. [P3]

Since our institution is a multi-campus institution, we have to collaborate with other colleagues in other campuses to discuss subject matters concerning the same subjects that we teach. [P7]

The information-sharing practices are typical of a virtual community of practice where the academics form the community; information-sharing the practice within the domain of academia. The academics have formed relationships through their collaboration, and as a result, produce information resources that are valuable to the community and thus become knowledge assets to the organisation. This resonates with the findings of Bratiano (2015) and Valenti and Sutton (2020).

The sharing of information is based on shared objectives that resonates with Gencer's (2019) views on collaboration within groups. Furthermore, the sharing of information means that the academics are working together as a virtual community of practice. This should lead to better work practices, as indicated by Jørgensen and Edwards (2020), as they share information as part of conversations about work.

5.2.6 Information-sharing platforms

In their research entitled, *A two-way street: collaboration and information-sharing in academia. A theoretically based, comparative Australian/Vietnamese study*, Pham and Williamson (2018) state that, alongside the use of social collaborative tools for sharing information about general library resources and learning support, learning management systems have become a sought-after workspace where library staff and academics can work together to help students with specific course-related needs. Tailoring and embedding library instruction, information literacy, research skills and course-related resources into online learning management systems has been a growing trend in universities.

Recent studies have shown that universities, including those in Africa, are transitioning, or have already moved, from face-to-face to blended education, and now to fully online learning, offering the same courses and programmes through a web-based system. Universities are competing in the market for students and/or workers who are interested in advancing their careers, the space (internet connections, network, and bandwidth), types of technologies to use, classrooms, academic teachers, and administrative staff (Behren & Kret, 2019).

The current research study focuses on the different technology-enabled information-sharing platforms that academics use in their information practices situation to meet their varying information needs. The research sub-question required the academics to identify current platforms used for information-sharing and those proposed for future use, the theme was simplified to integrate both types of platforms into one.

The first question posed to participating academics focused on technology-enabled information-sharing platform currently being used for information-sharing. This research found out that participants used emails for sharing of documents. Blackboard, which is customised as WiSeUp by the institution in question, and Microsoft Teams were also current information-sharing platforms popularly used for information-sharing with students. Some academics believed that using Facebook and WhatsApp for sharing information was helpful, as these platforms were the most widely used. The given reasons for the motivation of these platforms were that they could run on cell phones, which are easily portable.

During the interview participants indicated:

Most of the time, I prefer to use email to share information with other academics. [P9]

I have opted to use Blackboard to share information with my students since information is shared with many students simultaneously. [P11]

Microsoft Teams is the new technology platform that enables the sharing information through virtual meetings without having to have physical contact. [P14]

These findings of the study are in line with what literature revealed as the prevalent platforms currently being used. The use of WhatsApp is supported by Baishya and Maheshwari (2019) when they report that in the field of academics, WhatsApp plays a very important tool in exchanging information regarding studies and academic events. Recently, in educational contexts another function of WhatsApp become very popular, i.e., WhatsApp groups. Most students have their own WhatsApp group for their batches, classes, department, etc.

These findings align with those of Tausczik and Huang (2020), who affirm that open exchange and voluntarily sharing of information are now possible with the advances in technology and communications platforms.

5.2.7 Information-sharing approaches

The findings of the research study showed that academics were using varying approaches to share information. The theme developed when participating academics addressed the research sub-question on how academics shared information. The research sub-question was further developed into interview questions, which included the question aimed at determining approaches used by academics for information-sharing. The approaches used for information-sharing depended on information practice situations that informed the information needs of the persons sharing information.

The academics named various approaches they were using, but the findings of this research are that these users of information mainly used electronic mail, filesharing (Dropbox) and face-to-face interactions in their information practice situations. Whilst the COVID-19 pandemic necessitated information-sharing through technology-enabled information-sharing platforms for execution of academic functions, some academics still favoured face-to-face approach. They claimed that technology-enabled information-sharing approaches lack active participation and instant responses to feedback or clarity that might be needed on shared information.

Statistically, this research determined that respondents preferred to use Dropbox (43%) and email (43%) as the best approaches for sharing of information in their institution of higher learning.

For I prefer to use Dropbox as an approach to information-sharing. [P15]

Some of us have been exposed to using email and as such I continually use email to share information with other academics. [P15]

Other respondents (14%) used face-to-face interactions to share information with each other.

Whilst technology related approaches are the best, I still prefer face to face because of its advantage of body language. [P20]

The findings of the current research are in line with other scholars' findings in the literature review. For example, Piloret and Limberg (2011) indicate that approaches used form part of information practices.

5.2.8 Factors that influence academics' experience in using technology-enabled information-sharing platforms

According to Songca *et al.* (2021), challenges such as technology adoption, required skills, Internet connectivity, network coverage, tools typically used in such environments and many more were among the major obstacles for many academics and students to benefit from using the LMS. The online presence prior to COVID-19 was made of only a few groups of academics, who in our context are called eLearning champions. They further claim that to overcome these challenges, a multi-modal approach was proposed and piloted in phases.

The current research study revealed that the overall percentage between barriers and enablers indicate that 22% felt that collaboration and information-sharing was a barrier, and 78% viewed them as enablers in the use of technology platforms. This aspect is a 'soft' or human issue and might be caused by the fact that collaboration is not administratively regulated and that there is a lack of information-sharing culture. Most academics who took part in this study (80%) felt that lack of training was impeding their use of technology-enabled information-sharing platforms, and 20% supported the view that training was instrumental in their experience in using these platforms. Another issue of comparison is technology, which might also translate to how respondents share information for collaboration. Lastly, the use of these platforms was impeded by lack of IT skills. 62.5% of respondents reported that lacking IT skills was indeed a barrier to using technology platforms for information-sharing, and 32.5% talked positively about having such skills in driving collaboration.

The online presence prior to COVID-19 was made up of only a few groups of academics, who in our context are called eLearning champions. To overcome this, a multimodal approach was proposed. Contrary to what Dintoe (2018) found, which was that technology was not yet adopted for teaching and learning in African universities, the pandemic forced people to adopt technology to continue their teaching

Findings of this research were also that the situation caused by the COVID-19 pandemic afforded the participants the opportunity to fully experience the benefits of technology-enabled information-sharing platform, such as the use of Blackboard Collaborate, Microsoft Teams and WhatsApp. This made the execution of academic functions possible during the COVID-19 lockdown, due to closure of institutions of higher learning from 26 March 2020.

5.2.9 Impact of collaborative information-sharing on academic performance

Collaborative information-sharing was believed to have an impact on the performance of academics and this research, and the development of this theme was informed by the posed research sub-question, which was crafted to examine whether information-sharing had any impact on the academics involved in that process.

The findings of this research study show that most participants believe that collaborative information-sharing had the potential of enhancing task execution and thus academic performance in their institutions of higher learning. In the same question, participants expressed that collaborative information-sharing resulted in improved productivity and work relations. This was caused by the empowerment of novice academics by more experienced academics, due to collaboration existing amongst academics.

Studies on collaboration amongst academics showed improvement in problem-solving, as collaborations exist due to existence of problems, for example where Islam (2017) indicates that individual performance is improved when knowledge is utilised and shared amongst faculty members.

5.2.10 Promotion of higher education information-sharing culture

Academics were asked to indicate how their institution of higher learning could cultivate a culture of information-sharing amongst the working force. The responses to this question resulted in the development of the higher education culture theme. In response to the posed question, the academics interviewed provided varying ways in which a culture of information-sharing could be promoted by the institution in the case study.

Maiga (2017) in his study, argues that universities, as dynamic organisations, need to cultivate a conducive knowledge-sharing environment and recommends that managers should implement policies, and provide rewards and recognition to encourage staff to share knowledge. Maiga also recommends the use of technologies such as video conferencing, electronic forums, and social media like Twitter and Facebook to maximise the sharing of knowledge. The implementation of

policies on knowledge-sharing should involve the use of formal supervisory controls or more general organisational support.

The findings of the current research study revealed that academics believed that policies were needed to be developed to instil a culture of information-sharing in an institute of higher education. They further said that information-sharing awareness modules as part of induction programmes were needed. The study further revealed that some academics felt that information-sharing culture can be enforced through collegiality, administering of common assessments and that importance of information-sharing be included in all communications.

5.3 Summary of findings

The findings are summarised in Table 20.

Table 20: Summary findings

Research sub-question	Interview Question	Key concept	Finding
1.1 What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?			
	How do academics currently obtain information for their academic work for collaboration?		
	Example of information-sharing.	Situation	Information is used for the typical tasks associated with academics work with collaboration being indicated.
	What information was needed?	Information need	Academics mostly need to share documents as part of their practices.
	What information?	Information object	Word documents are still used the most as part of collaborating with other colleagues and for teaching purposes.
	4 How did you search for it?	Information seeking/sending	Various seeking strategies are used to find the information needed.
	5 Why did you need the information?	Information purpose	There are various purposes that are mostly associated with collaboration and teaching.
	6 Who could assist you	Information collaboration	Sharing of information is mostly between academics within the same department or at the same location.
	7 How was the sharing facilitated?	Information platform	Current information-sharing platform used by academics is still predominantly email.
1.2 What approaches do academics use for information-sharing of an institution of higher learning			
	8 What approaches do academics use for information-sharing of an institution of higher learning?	Approaches	Academics preference is to collaborate via electronic means although this is most probably because this study was conducted during the pandemic where face-to-face meetings were not possible.
1.3 What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?			
	9 Please identify barriers, challenges, and benefits that in your opinion could influence the experience of academics using technology-enabled information-sharing platforms.	Technology influences	The factors influencing the technology experience is that most of the factors for information-sharing have a mixed of positive and negative experiences that

			are mostly negative associated with training, hardware, and use.
	10 What technology platforms do you suggest as suitable for information-sharing in an academic institution? Please also indicate the reason for your choice.	Suitable platforms	There is a significant shift towards using online platforms that is probably due to the restrictions of the pandemic where work practices had to adapt to deal with the teaching and research work as a new "normal."
SRQ2.1 How can collaborative information-sharing improve academic performance?			
	11 What is your opinion on the potential influence of collaborative information-sharing on academic performance?	Academic performance	Collaborative information-sharing on academic performance enhances the academics' task executions.
SRQ 2.2 What are the academics preferences for using technology to share information for collaborative work?			
	12 What would be your suggestions for suitable technology platforms for information-sharing amongst academics to increase collaboration?	Increased collaboration	The influence of collaborative information-sharing on academic performance is that this could enhance their task executions.
SRQ 2.3 How does the higher education institution promote a culture of information-sharing amongst academics?			
	13 What do you suggest that higher education institutions could do to promote a culture amongst academics?	Information culture	The promotion of an information-sharing culture can be achieved with policies to guide an awareness of information-sharing as well as through awareness programmes and by including this in induction programmes.

5.4 Chapter summary

This chapter presented and discussed the themes that developed from the findings of the current research study, as detailed in Chapter 4 and aligned with the findings of the literature, in order to provide answers to the research sub-questions. Technology-enabled information-sharing platforms for collaboration amongst academics are summarised from the developed themes which are: information practice situations; information needs; information seeking and sending; purposes of information-sharing; technology-enabled information-sharing platforms; approaches to information-sharing; impact of collaborative information-sharing on academic performance, factors that determine academics' experience of using technology-enabled information-sharing platform and promotion of higher education information-sharing culture.

The research has come to the same conclusion in the findings as in the literature, that various information practices situation result in various information needs of academics. This is because academics play various roles and functions which include, but are not limited to, research, administration, teaching, and learning. Accordingly, this research further reveals that the participants' seeking and sending information behaviour is informed by the information needs of academics relevant to their information practices situation. The participants indicated that they searched for information using online databases like Google Scholar and mainly depended on their institutional intranet emails to share information amongst themselves. It was further revealed

in this research that the purpose of information-sharing was determined by the information practices situation, which resulted in varying information needs. The purposes are also linked to various roles and functions of the people sharing information. These include sharing information for setting of examination papers, for teaching and learning, for research, for reviewing of the syllabus and provision of training.

The use of emails as a technology-enabled information-sharing platform for sharing of documents was popular amongst participants. The given reason was that the institution had its mailing system that participants were encouraged to use for official communication. Blackboard, which is customised as WiSeUp by the institution of higher learning under examination, and Microsoft Teams were also current information-sharing platforms which seemed to be the popular choice of sharing with students. Some academics believed that using Facebook and WhatsApp for sharing information was helping, as these platforms, in which groups can be set up based on similar interests and topics, were the most popular. The given reasons for the popularity of these platforms were that they can run on cell phones, which are easily portable.

CHAPTER 6: CONCLUSION, RECOMMENDATIONS AND FURTHER RESEARCH

6.1 Introduction

The purpose of this chapter is to report on the provision of answers to the research questions and aims of the research study. The chapter is structured to include an overview of the research conducted, which includes the summarisation of what was carried out in comparison with what was proposed. The research questions were revisited and answered. This started with provision of answers to the research sub-questions, which resulted in answers to the main research question. The given answers were derived from the interpretation of the key findings.

In this chapter, the researcher provided a reflection on the research by sharing his experience and giving an account of his practical experience in carrying out the research. The experience shared included what the researcher encountered in the field, and challenges he encountered along the way and how he overcame those challenges. The researcher also reported on lessons learned. A detailed account of how the researcher planned to conduct research is provided versus how the actual research happened in practice.

This chapter also provides contributions of research to various areas, which included knowledge, methodology and practical contributions. The last part of this chapter focuses on further research in which suggestions are made for further research. These suggestions emanate from the key findings of this research study and are informed by the delineation of the study.

6.2 Overview of research conducted

The aim of the study was to explore the use of technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning based in the Eastern Cape province of South Africa. The aim was divided into objectives to be achieved through provision of answers to the research questions and research sub-questions. The research study addressed the research questions through academics' provision of answers in the interview schedule in question.

The findings of the research conducted are in line with what was initially planned and proposed in the proposal in Chapter 1. The research study went through all the proposal steps and followed the methodology outlined during the proposal stage. The setting of the research was an institution of higher learning that was chosen as a research site of the case study, as initially planned during proposal stage. The population and sampling were the academics within the Departments of

Accounting located in four campuses of the institution in the case study. The sample size consisted of twenty (20) academics who participated in the research study that was conducted.

6.3 Research questions revisited

In this section of this chapter, research questions and their sub-questions are answered in line with the interpreted findings of this research study. The interpretation of findings related to the research sub-questions resulted in answers to the main research questions.

6.3.1 Research sub-questions related to Research Question 1 addressed

Research Sub-Question 1: What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?

The question was broken down into seven interview questions to further elaborate on how information-sharing and collaboration took place amongst academics. The first interview question focused on the situations that resulted in academics being involved in information-sharing, in which academics stated that research, teaching and learning, involvement in various meeting setups and conducting assessment were the information practices situation that resulted in their information-sharing behaviours. These situations are related to various roles and responsibilities of academics, as mandated by higher education institutions.

The information practice situations evolved into various information needs of academics, which was the answer to the interview question that sought to determine the information needed for sharing, as informed by the situations that called for information-sharing. The next interview question connected to this research sub-question involved the seeking and sharing of information. In this question, the academics reported that information was sought from various electronic resources, which included online databases and institutional websites. In answering this question, academics indicated that their seeking for information was based on their information needs, as determined by their information practice situations. Seeking for information needs related to research, teaching and learning required the searching of online databases. The situation surrounding the administration of assessments to students required the sharing of previous assessment question papers amongst academics themselves.

The purposes of information were reported as being driven by the desire of academics to perform their mandated functions and roles, as determined by their employment contracts. The answers provided regarding why there was a need for information included the need for decision-making, benchmarking, teaching, and learning, research supervision and lesson preparation. The academics went on to report that the information was mainly shared through institutional emails,

WhatsApp and Microsoft Teams as technology-enabled information-sharing platforms to enable collaboration amongst academics of the institution of higher learning being explored.

Research Sub-Question 2: What approaches do academics use for information-sharing at institutions of higher learning?

The research reports on the provision of answers to the above research sub-question about the approaches used by academics for information-sharing at their institution of higher learning. The provided answers included using electronic mails to share information and the given reason was that the institution already had an email system that academics could use. The academics reported that using email was imperative, as the system had the functionality to attach files, which enabled them to share information needed to execute their mandated functions and drive the vision of the institution. The choice of email made it easy to support various information needs, as informed by information practice situations that academics were involved in.

Furthermore, the above research sub-question yielded answers to the choice of file sharing using Dropbox, which was the second most popular choice of approaches to information-sharing amongst academics. Whilst the choice of technologies as approaches to sharing information is preferred amongst collaborating academics, some few academics still believed that face-to-face interactions were superior. In support of their chosen face-to-face approach, they felt that it afforded them an opportunity to probe for clarity when information was being shared. Academics also reported that face-to-face approaches gave them the chance to see gestures and body language when information was being communicated to other academics.

Research Sub-Question 3: What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?

The research sub-question with respect to factors that influenced the academics' experience in using technology-enabled information-sharing platforms was answered in relation to benefits, challenges, and barriers in using these platforms. The academics reported that they had benefited from the use of these platforms, as they could perform teaching and learning, especially during the COVID-19 pandemic. They further indicated that using Microsoft Teams had benefitted them, as the platform is able to bring them together in one place during various meetings that required information-sharing. The various meetings administered included subject meetings, departmental meetings, and faculty board meetings for some academics.

Some technology-enabled information-sharing platforms included the use of Blackboard Collaborate, customised as WiSeUp for teaching and learning. The benefit of this platform is in

its ability to enable live chats and record views which can be shared. On the issue of challenges and barriers to use of technology-enabled information-sharing platform, the academics reported that lack of IT-related skills impeded their use of these platforms. Furthermore, some academics felt that there was minimal or no training on how to use the platforms that were introduced to enable their use. There seemed to be confirmation of the answers with respect to this research sub-question in the findings of research carried out by Songca *et al.* (2021) when they report that challenges and barriers in technology adoption, skills, connectivity, network coverage, posed major obstacles for many academics and students to make full use of the LMS.

RESEARCH QUESTION 1: What technology-enabled information sharing platform do academics currently use to obtain information for their academic work for collaboration?

The previous section of this chapter provided answers to research sub-questions linked to this main research question. The answers provided relate to the interpreted findings as discussed in the previous chapter (Chapter 5). This research study found out that academics were involved in various information practice situations that resulted in various information needs. It further reported that information needs of academics were informed by the purposes that that information was needed for. The collaborating academics used emails, Dropbox and face-to-face approaches to obtain information from other academics to perform their mandated functions.

Microsoft Teams and Blackboard technology-enabled platforms were used sparingly whereas WhatsApp and Facebook were also preferred by academics for sharing of information. Whereas the use of technology-enabled platforms brought benefits to academics, some challenges and barriers in their use were recorded. Some academics felt that lack of IT skills and lack of or minimal training were prohibiting factors that resulted in academics not being comfortable in their use. Poor connectivity was also seen as a barrier to using technology-enabled platform.

Technology-enabled information-sharing results in both positive and negative experiences and with a shift towards the use of more online platforms attention needs to be given to the hardware, training, and use of such platforms to increase a better user experience.

6.3.2 Research sub-questions related to research question 2 addressed

Research sub-question 2.1: How can collaborative information-sharing improve academic performance?

The findings of this study were interpreted to give answers to the above research sub-question related to impact of collaborative information-sharing. The academics in this study reported that collaborative information-sharing enabled them to improve their delivery of course execution.

They claim that information-sharing resulted in empowerment for those novice academics as through collaboration experienced academics could impart their knowledge.

There seemed to be positive impact of collaborative information-sharing as most academics reported that their academic performance improved and were reaping positive results attributed to collaboration with other academics. This is because collaboration and information-sharing were open and not restricted to positions in the departments. The findings of this research further showed that work relations amongst academics had improved as trust issues were ironed out due to continuous collaboration that needed not administrative regulation.

Research sub-question 2.2: What are the academics preferences for using technology to share information for collaborative work?

Addressing this question, the academics reported that they preferred to use Microsoft Teams for information-sharing amongst themselves. They added that the choice of MS Teams was because it was the most used and preferred by the institution of higher learning they are working for. Furthermore, the chosen platform was more user-friendly, and it was favourable in meeting situations in which deliberations of the meeting could be recorded for further reference. MS Teams allows for sharing information through it share screen when the meeting is taking place.

The second platform that academics preferred was Blackboard Collaborate which they mainly used to conduct live classes with their students. The use of this platform was prevalent for teaching and learning particularly during the lockdown period as institutions were closed. Teaching and learning had to be undertaken to save the academic year of 2020. Academics revealed that videos could be recorded on Blackboard and shared to students and that functionality was attracting and benefiting academics as teaching and learning could take place anytime.

Another technology platform that got popularity amongst academics was WhatsApp where academics shared information in various groups that included academics teaching the same subjects, department groups for departmental information and those created by students for specific subjects. Academics reported that the use of WhatsApp allowed them to send notes and voice notes to enable their teaching and learning. The use of this platform was made popular because it could connect smartphones with computer to help join academics in Ms Teams for classes and meetings.

Research sub-question 2.3: How does the Higher Education Institution promote a culture of information-sharing amongst academics?

The research sub-question asked to the academics meant to determine how their institution of learning promoted culture of information-sharing amongst academics. The findings of this research bear answers to this question in which academics reported that policies were needed to be developed to instil a culture of information-sharing in an institute of higher education. These academics further believed that information-sharing awareness programmes should be included in induction programmes to keep abreast with policies related to information-sharing culture. The findings further revealed that some academics reported that information-sharing culture can be enforced through collegiality, administering of common assessments and that importance of information-sharing be included in all communications.

RESEARCH QUESTION 2: What technology-enabled information-sharing platforms are suitable for collaboration amongst academics at the institution of higher learning?

The academics were asked to provide answers to this research question by answering the research sub-questions linked to the given main research question. The research question wanted the academics to determine technology-enabled information-sharing platforms suitable for collaboration amongst academics. Research findings showed collaborative information-sharing resulted in improved academic performance and task execution. Academics reported that their productivity was improved as they became empowered through collaboration.

Furthermore, findings of this research showed that academics considered Microsoft Teams, Blackboard Collaborate and WhatsApp as being suitable platforms for collaboration amongst academics. The suitability of technology-enabled information-sharing platforms resulted in academics reporting the importance of promoting higher education culture of information-sharing culture amongst academics. It is further believed that higher education culture of information could be promoted through development of policies by institution of higher learning in the case study. The academics also believed that the culture of information-sharing should also be included in induction programmes to create awareness amongst new academics that are being inducted.

6.4 Reflections on research

The research study followed a case study approach focusing on an institution of higher learning based in the Eastern Cape province of South Africa. The results shown came out of interview answers obtained from 20 participants who were academics in the institution that was explored.

Before the interviews could take place, the researcher planned a series of visits with participants in their campus base to conduct face-to-face interviews, with a planned schedule that contained dates and times of interviews. The COVID-19 lockdown commencing on 26th March 2020 meant

that schools and institutions of higher learning were closed. This meant that the planned visits to campuses by the researcher were not possible.

However, with the institution where the researcher was employed and Cape Peninsula University of Technology providing new laptop and data respectively, the researcher organised interviews using Microsoft Teams and telephonic interviews to enable data gathering. The challenge, though, was inaccessibility of academics to participate in the process. This was caused by network problems in the areas where the participants were based during the lockdown, as well as a lack of interest in participating in the research. This was because the consent form stated that research participation was voluntary and that participants were free to withdraw their participation in the study. The researcher had to identify and request cooperation from new participants, which prolonged the interviewing process.

Conducting this research has taught me to be patient when situations were against me and that researchers must plan for unseen circumstances, as proven by the spread of coronavirus pandemic.

6.5 Knowledge contribution

The literature reviewed showed that there were studies conducted on information-sharing in South Africa and therefore this study can contribute to knowledge generation in the field. Findings of this study may help the institution of higher learning where this research is set to develop policies for the inculcation of a culture of information-sharing amongst its community members. This study will further contribute to information-sharing and collaboration practices amongst institutions of higher learning in South Africa. It is, however, important to note that the intention was not to obtain generalisable findings, and therefore situated knowledge was generated.

6.6 Recommendations and Further research

The current study explored a technology-enabled information-sharing platform amongst academics at an institution of higher learning. The study was conducted in one institution in the Eastern Cape. South Africa has twenty-six (26) institutions under the purview of the Department of Higher Education (DHET) and similar studies are recommended in other institutions to provide a full picture of technology-enabled information-sharing platforms for collaboration amongst academics in the institutions of higher learning in South Africa.

The literature reviewed and the findings of this research indicate that academics were using WhatsApp, Microsoft Teams, Blackboard Collaborate and Facebook to share information

amongst themselves. The sharing of information through technology-enabled platforms was informed by information practice situations.

The researcher suggests that a comprehensive study be conducted on the impact of information-sharing practices amongst academics in South African institutions. This research study proposed that this research study results should not be generalized due to its scope restrictions. A similar study is recommended as it would be useful for replicability of the research findings of this current study. The researcher recommends that this research extends to other institutions of higher learning under the jurisdiction of the Department of Higher Education. Whilst approaches might be common across the entire institution probably caused by information sharing culture, this might not be the case with other South African institutions, a similar study or an extension of the current study is necessary to provide the South African university context of information sharing culture and collegiality.

This is because the current study findings cannot be generalized due to the scope of the study and the delimitations. A similar study would go a long way in adding to the existing knowledge and some aspects can be added to help fill the gap existing in the field of information sharing.

The researcher recommends that a study exploring academic preferences of technology to drive collaborated information sharing be conducted. This would help to gain a better understanding of behaviours and preferences of academics in terms of technologies for executing their mandated tasks. Knowledge of technology preferences by academics would result in investing in the right technologies to inform technology infusion and diffusion in the entire university set up. This would further result in an informed decision making by the university management.

The question on impact of collaborative information sharing on academic performance may only be relevant on the current institution and that may not be the case for some institutions hence it is imperative to extend this research beyond the institution of higher learning. Probably, research focusing on collaborative arrangements to address the issues of academic performance may be undertaken to recommend information sharing as some academics use various approaches to improve their subjects offering. In this case, the focus would not be necessarily on technology-enabled information sharing platform but on using information sharing to inform collegiality.

The focus of the research was on exploring technology-enabled information sharing for collaboration amongst academics focusing on an institution of higher learning in the Eastern Cape and new research could be done looking at other aspects of information sharing. This could be done to do a comparative assessment of technologies used by various institutions of higher

learning to drive collaboration amongst academics. Such research would result in getting more data about the information culture of such universities. The recommended research could provide more state and use of collaborative technologies. More research in information sharing would help gain more understanding of the university context and the impact of collaboration amongst academics in driving their university mission in pursuit of their visions.

Due to the size of the sample, it is also recommended that a study be conducted in which a bigger size in terms of the sample can be involved to find out the extent in which academics use technology-enable information sharing platform to collaborate on matters related to academic functions are met and the extent to which information is shared to meet information needs. The context of the institution being investigated might not be necessarily common with other institutions hence an extension of this study is recommended to find similarities and the gaps that might be found.

For the current research study, it was imperative to find out what drive the experiences of academics involved in this research in using technology-enable information sharing platform and the delimitation of the study again provided for no generalization. Extending this research to a broader community of academics in a broader context would give an overall picture of circumstances surrounding the experience of academics in using collaborative technologies in various information practices situations and the quest for meeting their information needs. In-depth research similar to this study would be necessary to increase knowledge in this interesting field of study to provide more detailed information and context in this area.

6.7 Conclusion

This final chapter is about the conclusion and further research and focused on the provision of answers to the research questions and sub-questions. It further provides an overview of the entire research process that took place when the research was initiated. It is important in this last chapter to provide a reflection on how this study evolved from the proposal stage until the findings were analysed. The aim was to reflect on the research journey and the challenges along the way, particularly the data collection amid the spread of coronavirus pandemic.

The researcher provided suggestions for further research and was informed by the delimitations of the current research. The basis of these suggestions was to extend similar research to other institutions of higher learning in South Africa. Contributions of this research study focused on generation of knowledge to add value the body of knowledge in the field of information-sharing. It

is recommended that a comprehensive study be conducted to include all academics in the institutions of higher learning in South Africa.

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APPENDICES

APPENDIX A: ETHICS CERTIFICATE

P.O. Box 1906, Bellville 7535 South Africa, Tel: +27 21 4603291, Email: fbmsethics@cput.ac.za, Symphony Road Bellville 7535.

Office of the Chairperson Research Ethics Committee	Faculty: BUSINESS AND MANAGEMENT SCIENCES
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The Faculty's Research Ethics Committee (FREC) on **17 October 2019**, ethics **Approval** was granted to **Mzoxolo Pumlomo (219301042)** for research activities of **M Tech Business Information Systems** at Cape Peninsula university of Technology.

Title of dissertation/thesis/project:	A TECHNOLOGY-ENABLED INFORMATION SHARING PLATFORM FOR COLLABORATION AMONGST ACADEMICS AT AN INSTITUTION OF HIGHER LEARNING Lead Supervisor (s): Prof R. De La Harpe
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Comments:

Decision:

Approved

	17 October 2019
Signed: Chairperson: Research Ethics Committee	Date

APPENDIX B: CONSENT LETTER



Introductory letter for the collection of research data

MZOXOLO PUMLOMO is registered for the M Tech (BUSINESS INFORMATION SYSTEMS) degree at CPUT (219301042). The thesis is titled: **A TECHNOLOGY-ENABLED INFORMATION-SHARING PLATFORM FOR COLLABORATION AT AN INSTITUTION OF HIGHER LEARNING** and aims to explore technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning.

The supervisor for this research is: Prof Retha de la Harpe

In order to meet the requirements of the university's Higher Degrees Committee (HDC) the student must get consent to collect data from organisations and private individuals which they have identified as potential sources of data. In this case the student will use INTERVIEWS to gather data.

If you agree to this, you are requested to complete the attached form (an electronic version will be made available to you if you so desire) and print it on your organisation's letterhead.

For further clarification on this matter please contact either the supervisor identified above, or the Faculty Research Ethics Committee secretary (Ms V Naidoo) at 021 469 1012 or naidoovve@cput.ac.za.

Regards

Prof Retha de la Harpe
Supervisor
IT department
CPUT
delaharpea@cput.ac.za
021 4603627
13 February 2019

APPENDIX C: PERMISSION TO DO RESEARCH AT WALTER SISULU UNIVERSITY



Contact Details: Office No: 047 401 6279, Fax No: 047 401 6284, Email Address: bnguza-mduba@wsu.ac.za Mobile No: 0835601320

I Bulelwa Nguza-Mduba, in my capacity as Dean: Faculty of Management Sciences at Walter Sisulu University at the Butterworth Campus give consent in principle to allow MZOXOLO PUMLOMO, a student at the Cape Peninsula University of Technology, to collect data in this company as part of his/her M Tech (BIS) research. The student has explained to me the nature of his/her research and the nature of the data to be collected.

This consent in no way commits any individual staff member to participate in the research, and it is expected that the student will get explicit consent from any participants. I reserve the right to withdraw this permission at some future time.

In addition, the company's name may or may not be used as indicated below. (Tick as appropriate.)

	Thesis	Conference paper	Journal article	Research poster
Yes	√	√	√	√
No				

Bulelwa Nguza-Mduba

16 September 2019

APPENDIX D: QUESTIONNAIRE



Semi-structured-questionnaires

Interview schedule:

TITLE: A TECHNOLOGY-ENABLED INFORMATION-SHARING PLATFORM FOR COLLABORATION AMONGST ACADEMICS AT AN INSTITUTION OF HIGHER LEARNING

Introductory remarks:

According to Savolainem (2017) information-sharing and knowledge-sharing are closely related concepts that are often used interchangeably. The term information-sharing is preferred in library and information science while researchers in the fields such as management science, strategic management and human-computer interaction favour the term knowledge-sharing. This study aims to explore technology-enabled information-sharing platforms for collaboration amongst academics at an institution of higher learning.

The aim: The aim of the research is to explore use of technology-enabled information-sharing platform for collaboration amongst academics at an institution of higher learning.

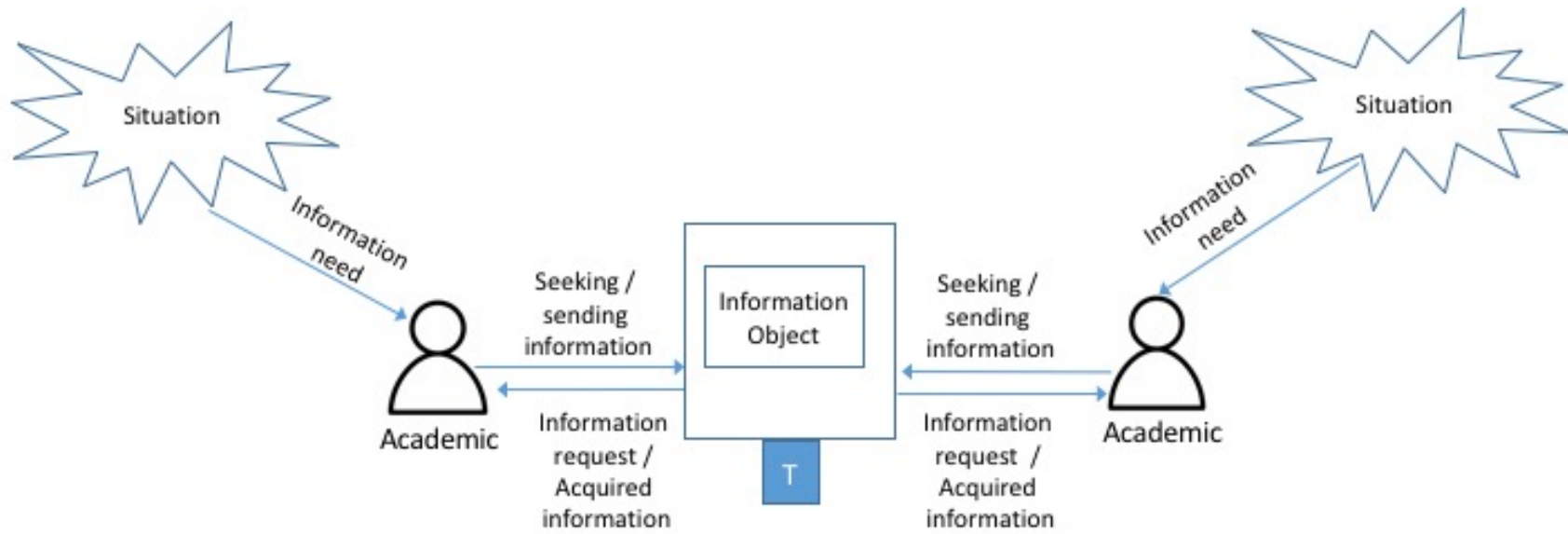
We are kindly requesting answers to the questions listed below in your good faith. Your answers will be used specifically for this study purposes only and they will be treated with the highest degree of confidentiality and privacy. Also, participation in this interview is voluntary and allows anonymity as well as autonomy.

Section A: participant's details

Name: _____	Date: _____
Surname: _____	Contact No: _____
Position: _____	

Section B: Questions

The questions will be based on the conceptual model below that informs this study



Technology-enabled Information Sharing Platform

RQ1. How do academics currently share information during their collaborations?

SRQ1.1. How do academics currently obtain information for their academic work for collaboration?

Interview Questions:

Please provide me with three examples where you have recently shared information to collaborate with others – it can be when you need information or when you provide information.

Situation (example)	What information was needed? (Information need)	What information (information object)	How did you search for it? (seeking/sending)	Why did you need the information (purpose)	Who could assist you (collaborator)	How was the sharing facilitated? (platform)
1.						
2.						
3.						

SRQ 1.2 What approaches do academics use for information-sharing of an institution of higher learning?

Interview question: What approaches do academics use for information-sharing of an institution of higher learning?

Comment:

SRQ 1.3 What factors influence the academics' experience in using technology-enabled information-sharing platforms at the institution of higher learning?

Interview questions:

Please identify barriers, challenges, and benefits that in your opinion could influence the experience of academics using technology-enabled information-sharing platforms?

Comment:

Barriers (pain points)

Challenges

Benefits (gains)

RQ 2 What technology-enabled information-sharing platforms are suitable for collaboration amongst academics at the institution of higher learning?

Interview question: What technology platforms do you suggest as suitable for information-sharing in an academic institution? Please also indicate the reason for your choice.

Comment:

SRQ 2.1 How can collaborative information-sharing improve academic performance?

Interview question: What is your opinion on the potential influence of collaborative information-sharing on academic performance?

Interview question: How, in your opinion, can information shared with other academics, assist with performing a specific task?

Comment:

SRQ 2.2 What are the academics preferences for using technology to share information for collaborative work?

Interview question: What would be your suggestions for suitable technology platforms for information-sharing amongst academics to increase collaboration?

Comment:

SRQ.2.3 How does the Higher Education Institution promote a culture of information-sharing amongst academics?

Interview question: What do you suggest that Higher Education Institutions could do to promote a culture amongst academics?

Comment:

Thank you for your time and patience in answering the questions. Your contribution is highly appreciated.

APPENDIX E: CERTIFICATE OF AUTHENTICATION



laurakleinhans1@gmail.com
ChickPeaEnglish@gmail.com
ChickPea Proofreading & Editing

49A York Close, Parklands, 7441
Western Cape, South Africa

Certificate of Authenticity

CERTIFICATE: COA261022RDLH

11 November 2022

To Whom It May Concern

This is to certify that “**A TECHNOLOGY-ENABLED INFORMATION-SHARING PLATFORM FOR COLLABORATION AT AN INSTITUTION OF HIGHER LEARNING**” by Mzoxolo Pumlomo, for the Faculty of Business and Management Sciences at the Cape Peninsula University of Technology (CPUT), under the supervision of Dr Retha de la Harpe, has been professionally edited by Dr. Laura Budler Kleinhans of ChickPea Proofreading and Editing Services for Students and Professionals.

Job Number	Document Title
261022RDLH	A TECHNOLOGY-ENABLED INFORMATION-SHARING PLATFORM FOR COLLABORATION AT AN INSTITUTION OF HIGHER LEARNING

Dr. Laura Budler Kleinhans
CEO ChickPea Proofreading & Editing

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