

Library research support for masters and PhD students at the University of Eswatini

By

Khosie Konkhekluhle Dlamini

DLMKHO008

Supervised by: Professor Jaya Raju

Co-supervisor: Andiswa Mfengu



A minor dissertation submitted in *partial fulfilment* of the requirements for the award of the degree of Master of Library and Information Studies

Faculty of the Humanities

University of Cape Town

2020

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Declaration

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in, this dissertation from the work, or works, of other people has been attributed, and has been cited and referenced.

Signature: K.K. Dlamini

Date: 10-07-2020

Dedication

Dedicated to my mother, sister, and grandmother

Acknowledgements

My utmost gratitude to my supervisor, Professor Jaya Raju and Co-supervisor Ms Andiswa Mfengu, for their continuous support, guidance, and motivation throughout this study. This study would not have been possible without your immense knowledge, insightful comments, timely feedback, and corrections. Most importantly thank you for your unwavering patience and nurturing throughout my research.

Thank you to my family and friends, especially Grammy Beams, for your continuous encouragement, support and motivation that helped me sail through to the completion of my studies. Your love and frequent calls carried me through the toughest parts of my research.

To my colleagues at Luyengo Campus Library, thank you for your support and assistance. To Nkosinathi Dlamini, Smangele Gule and Phumlani Mndzebele thank you for always being available and providing me with much needed help tirelessly throughout my studies.

To the Department of Knowledge and Information Stewardship at the University of Cape Town, thank you for the administrative and academic support.

My sincere thanks to the University of Eswatini for their financial support and for affording me this opportunity to pursue my masters.

Abstract

The changing academic and technological environment coupled with evolving research practices have greatly impacted the role played by academic libraries within the institutions they serve. This has sparked a global concern amongst academic libraries to re-evaluate their services as a means to aligning themselves to this new environment. As a result, academic libraries are transforming themselves and bringing about new services, particularly focussing on how they can enhance research output by providing support to researchers.

Given this context, this study seeks to ascertain the extent of research support by University of Eswatini (UNESWA) Libraries for masters and PhD students at UNESWA. To address this objective, the following critical questions were generated: What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini?; What are the library research needs of masters and PhD students at UNESWA?; To what extent are these needs being met by UNESWA Libraries?; and, If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency? Schoombee's (2014) research lifecycle adapted for library research support was used as a supporting theoretical framework to guide the study. The study adopted a convergent parallel mixed methods approach within a pragmatism paradigm and a case study design. Academic staff members and librarians at UNESWA were purposively sampled whilst a census was conducted for all masters and PhD students at UNESWA. Data was collected using a structured paper-based questionnaire and semi-structured interviews. Quantitative data was analysed using the *Statistical Package for the Social Sciences (SPSS)* and qualitative data was analysed thematically (by content analysis).

The study concludes, *inter alia*, that despite the various library research support services provided by UNESWA Libraries for masters and PhD students, an expanded suite of research support services to more fully meet UNESWA's masters and PhD students' library research needs, is required. The study recommends that UNESWA Libraries should utilise available technologies and incorporate additional research support services that speak to the research needs of digital age masters and PhD students.

Table of contents

Declaration	i
Dedication	ii
Acknowledgements	iii
Abstract	iv
Table of contents	v
List of tables	ix
List of figures	xi
List of abbreviations	xii
Chapter 1: Introduction and background to the study	1
1.1 Introduction	1
1.2 Context of the study	3
1.3. Background of the study	3
1.3.1 Postgraduate programmes at UNESWA	6
1.3.2 University of Eswatini Libraries	6
1.4 Research problem	7
1.5 Objective of the study	7
1.6 Critical questions	7
1.7 Significance of the study	8
1.8 Definition of relevant terms	9
1.8.1 Academic library	9
1.8.2 Library research support	9
1.8.3 Postgraduate students	9
1.9 Overview of methodology used	9
1.10 De-limitations of the study	10
1.11 Limitations to the study	10
1.12 Organisation of the research report	11
1.13 Chapter summary	11
Chapter 2: Theoretical framework and literature review	13
2.1 Introduction	13
2.2 Theoretical framework	13
2.2.1 Research activities and academic library support across the research lifecycle	16

2.3 Literature review	19
2.3.1 Changing academic library landscape	19
2.3.2 Research support in academic libraries	20
2.3.2.1. Information literacy training	21
2.3.2.2 Research data management services	22
2.3.2.3 New roles to support researchers	23
2.3.2.4 Research guides	24
2.3.2.5 Scholarly communication and open access	25
2.3.2.6 Research impact measurement	27
2.3.2.7 Research commons	28
2.3.3 Postgraduate students' library needs	28
2.4 Chapter summary	31
Chapter 3: Research methodology	32
3.1 Introduction	32
3.2 Research paradigm	32
3.3 Research approach	34
3.4 Research design	35
3.5 Research methods	36
3.5.1 Population	36
3.5.2 Sampling	37
3.5.3 Data collection	39
3.5.4 Research instruments	40
3.5.4.1 Questionnaire	40
3.5.4.1.1 Rating scales	41
3.5.4.2 Interviews	41
3.5.5 Pre-testing instruments	42
3.6 Validity and reliability	43
3.7 Data analysis and presentation	44
3.8 Triangulation	44
3.9 Ethical considerations	45
3.10 Chapter summary	45
Chapter 4: Presentation of findings	47
4.1 Introduction	47
4.2 Return rates	47

4.3 Presentation of findings	48
4.3.1 Biographical information	48
4.4 Research support services provided by UNESWA Libraries	53
4.4.1. Research support services provided by UNESWA Libraries as identified by librarians	54
4.4.2 Research support services provided by UNESWA Libraries as identified by masters and PhD students	56
4.5 Library research needs of UNESWA masters and PhD students	58
4.5.1 Library research needs of UNESWA masters and PhD students as identified by UNESWA librarians	58
4.5.2 Library research needs of UNESWA masters and PhD students as identified by UNESWA academics	60
4.5.3 Library research needs of UNESWA masters and PhD students as identified by masters and PhD students	62
4.6 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students	68
4.6.1 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA librarians	68
4.6.2 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA academics	68
4.6.3 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA masters and PhD students	69
4.7 Proposed library research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students	75
4.7.1 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as identified by UNESWA Librarians	75
4.7.2 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as identified by UNESWA academics	76
4.7.3 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as suggested by masters and PhD students	78
4.8 General comments	79
4.9 Chapter summary	80
Chapter 5: Discussion of main findings, conclusions and recommendations	81
5.1 Introduction	81
5.2 Discussion of findings	81

5.2.1 Research support services for masters and PhD students provided by UNESWA Libraries	81
5.2.2 Library research needs of UNESWA masters and PhD students	83
5.2.3 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students	86
5.2.4 Proposed library research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students	87
5.3 Conclusions	88
5.4 Recommendations	90
5.5 Chapter summary and general conclusion and evaluation	92
References	94
Appendices	110
Appendix A: Semi-structured interview schedule for librarians at UNESWA	111
Appendix B: Semi-structured interview schedule for academics at UNESWA	115
Appendix C: Structured questionnaire for masters and PhD students at UNESWA	118
Appendix D: Informed consent for UNESWA librarians	124
Appendix E: Informed consent for academics at UNESWA	126
Appendix F: Mapping the critical questions and relevant theory to sources of data and data collection instruments	128
Appendix G: UCT ethics approval letter	130
Appendix H: UNESWA ethics approval letter	131

List of tables

Table 3.1: Population and sample for librarians	37
Table 3.2: Population and samples for academics	38
Table 3.3: Postgraduate student population	39
Table 4.1: Biographical information for UNESWA librarians interviewed	49
Table 4.2: Biographical information for UNESWA academics interviewed	50
Table 4.3: Masters and PhD students' responses by programme	51
Table 4.4: Research support services provided by UNESWA Libraries as identified by librarians	55
Table 4.5: Research support services provided by UNESWA Libraries as identified by masters and PhD students	57
Table 4.6: Library research needs of UNESWA masters and PhD students as identified by librarians	59
Table 4.7: Library research needs of UNESWA masters and PhD students as identified by academics	61
Table 4.8: UNESWA masters and PhD students' library research needs at 'Prepare (Ideas and planning)' stage	63
Table 4.9: UNESWA masters and PhD Students' library research needs at 'Gather' stage	64
Table 4.10: UNESWA masters and PhD students' library research needs at 'Create' stage	65
Table 4.11: UNESWA masters and PhD students' library research needs at 'Manage and preserve' stage	66
Table 4.12: UNESWA masters and PhD students' library research needs at 'Share and collaborate' stage	67
Table 4.13: UNESWA masters and PhD students' library research needs at 'Measure' stage	67
Table 4.14: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Prepare (Ideas and planning)' stage	70
Table 4.15: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students at 'Gather' stage	71
Table 4.16: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students at 'Create' stage	72
Table 4.17: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Manage and preserve' stage	73

Table 4.18: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Share and collaborate' stage	74
Table 4.19: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Measure' stage	74

List of figures

Figure 1.1: Map of Eswatini showing the University of Eswatini Campuses	5
Figure 2.1: The six-phased research lifecycle and subjacent activities adapted for library research support by Schoombee (2014)	18
Figure 4.1: Masters students' study option	52
Figure 4.2: PhD students' study option	52
Figure 4.3: Masters and PhD students' study year	53
Figure 4.4: Additional research support services for more complete library research support for UNESWA masters and PhD students as suggested by UNESWA academics	77
Figure 4.5: Additional research support services for more complete library research for UNESWA masters and PhD students as suggested by masters and PhD students	79

List of abbreviations

AJOL	-	African Journals Online
A/Prof.	-	Associate Professor
<i>f</i>	-	frequency
GDP	-	gross domestic product
ICT	-	information and communications technology
HEI	-	higher education institution
IR	-	institutional repository
LIS	-	library and information studies
No.	-	number
OA	-	open access
OJS	-	Open Journals Systems
Prof.	-	Professor
PhD	-	Doctor of Philosophy
RDM	-	research data management
SD	-	standard deviation
SPSS	-	Statistical Package for the Social Sciences
UCT	-	University of Cape Town
US	-	United States of America
UNESWA	-	University of Eswatini
VU	-	Victoria University
WIT	-	Waterford Institute of Technology Libraries

Chapter 1: Introduction and background to the study

1.1 Introduction

Research is one of the key responsibilities within academic institutions. It plays a vital role in society as it propels development and generates new knowledge whilst finding solutions to address societal problems. Because of the critical role research plays in society, more universities are engaging and encouraging students and staff to participate in research activities and programmes (Rasul & Singh, 2010: 75). To date, research has become a necessary feature alongside teaching, particularly at postgraduate level as students are assessed based on their research output (Phoenix & Henderson, 2016: 573).

The primary mission of the academic library is to support the learning, teaching and research activities of its parent institution (Kennan, Corral & Afzal, 2014: 668). With the heightened interest in academic research, there has been a growing focus on the role libraries play in supporting research. Traditionally libraries fulfilled this mission by providing access and managing information resources, and collection development (Borrego & Anglada, 2018: 1). However, changes in the academic and research practices as well as changes in the needs of library patrons are requiring the academic libraries that support them to transform in order to provide effective and relevant information services (Parker, 2012; Richardson et al., 2012; Martinez, 2016; Hoffman, 2016).

In light of this, numerous authors have also questioned the role of academic libraries in supporting research activities and that of graduate students. As noted by Haddow and Mamtora (2017: 100), the research environment has a significant impact on research activity and library engagement both at institutional and individual level. Therefore, any developments and changes occurring within the research landscape will inadvertently affect the role of the library. This has stirred up considerable discussions about how academic libraries can best re-invent themselves and render services to their research patrons (Brown, Wolski & Richardson, 2015: 225); especially with some scholars being of the view that the academic library is planned and arranged to solve a problem of information scarcity (Anderson, 2011: 1). However, at present, this is not the case as researchers have a wide

array of online information resources, with abundant access points at their disposal (Patterson, 2009: 5).

Academic libraries have been on a mission to bridge the change gaps within their operational environment by finding solutions to providing up-to-date, relevant, and effective services. As a result, various authors have investigated library research support, bringing to light different viewpoints. Parker (2012: 2) defines research support as any role played by libraries in facilitating an enhanced research output and scholarship. Raju and Schoombee (2014: 28) see research support as the provision of a new and expanded suite of services. Borrego and Anglada (2018: 1) describe research support as library staff interventions in the research lifecycle through the provision of services in all the stages of the research process. Therefore, research support encompasses all activities, both new and traditional services within the library, that seek to enhance and support research.

Given the rise and increased focus on library research support, academic libraries have reconceptualised the way in which they offer support to researchers, aiming to provide an expansion of effective and relevant information (Martinez, 2016: 9). Furthermore, the research lifecycle allows for the academic library to provide research support services in the entire research process making it a partner throughout the entire research process (Vaughan et al., 2013: 313). These developments have also enabled libraries to shift from their 'traditional' tasks and tap into spheres that were once deemed for specialists, such as, digital humanities and data management (Hoffman, 2016: xiii-xxi).

Adeyemi and Oluwabiyi, (2013: 248) emphasise the need to continuously examine how libraries can aggregate support for researchers in this new environment particularly now that digital technologies have transformed how users seek and access information. Furthermore Gibbons (2012: 163) urges academic libraries to acknowledge that they exist in an increasingly competitive marketplace and ought to react accordingly. Hence the motivation to look into library research support for masters and PhD students at the University of Eswatini (UNESWA), in Eswatini (formerly known as Swaziland).

1.2 Context of the study

The University of Eswatini (UNESWA) in the Kingdom of Eswatini, since achieving university status in 1982 has grown and developed steadily in accordance with its stated aim of addressing national development (University of Eswatini, 2017). In 2012, UNESWA noted that there was a need for human resource development within the nation. The university saw it befitting to address this deficiency by establishing an Institute of Postgraduate Studies to offer masters and PhD programmes that would equip Swazi people with the necessary skills and qualifications needed in the workforce (University of Eswatini, 2018).

One of the institution's objectives is to provide quality teaching and learning opportunities at postgraduate level. In order to achieve this, students and staff members are constantly encouraged to participate in research. This is evident in the number of available research grants for both students and staff members willing to engage in research (University of Eswatini, 2017). During the 2017/2018 academic year, more graduate programmes were approved and implemented. As postgraduate programmes expand so does the nature and type of research undertaken in the institution. Simultaneously the information needs of these researchers also change, which impacts the library as well since it serves to provide and manage information resources utilised by these patrons. In order to effectively offer research support, it is crucial to understand the requirements of these library patrons.

1.3. Background of the study

Eswatini, formerly known as Swaziland, is one of the few remaining absolute monarchies in the world. It is a landlocked country in Southern Africa, nestled between Mozambique and South Africa, covering an area of 17 364 km² with a population of approximately 1.067 million people (World Population Review, 2019). Eswatini is well known for its annual Umhlanga reed dance, Emaganu (marula) festival and Incwala (national prayer) ceremonies which are a depiction of a culture and heritage rich nation. It is classified as a lower middle-income country and is heavily dependent on agriculture, and the manufacturing sector which accounts for 38% of the Gross Domestic Product (GDP) (Statista, 2019).

The University of Eswatini, previously known as the University of Swaziland, was the first national higher education institution (HEI) established in the Kingdom of Eswatini (then Swaziland). It was established in 1982 by an act of parliament of the Kingdom of Eswatini with instruction to teach, conduct research and engage in community service. It is made up of three campuses, Kwaluseni, Luyengo and Mbabane which are spread across the central western parts of the country (see Figure 1.1). The institution offers programmes including certificates, diplomas, bachelor's degrees, masters degrees as well as doctoral degrees. In the 2017/ 2018 academic year the University had a total of 7223 enrolled students and 912 staff members (latest figures available at the time of data collection) (University of Eswatini, 2019a).

The University of Eswatini's main campus, Kwaluseni, is based in Matsapha, an industrial town of Eswatini. It consists of five faculties, namely, Commerce, Education, Humanities, Science and Engineering, and Social Sciences. It also houses the Institute of Distance Education, the Institute of Postgraduate Studies as well as the Main Library. The Luyengo Campus is in the Malkerns Valley, notable for small-scale commercial farming. It is ideally situated for agricultural purposes and has two Faculties, Agriculture and Consumer Sciences. The Faculty of Agriculture has six academic departments which are: Agricultural Biosystems and Engineering; Agricultural Economics and Management; Agricultural Education and Extension; Crop Production; Animal Science; and, Horticulture. The Faculty of Consumer Sciences has three academic departments, namely, Consumer Science Education and Community Development; Food and Nutrition Science; and, Textile and Apparel Design. The Mbabane Campus, known as the Faculty of Health Sciences, is in the capital city of Eswatini and near the Mbabane Government Hospital. It has four academic departments: Community Health Nursing Science; Environmental Health Science; General Nursing Science; and, Mid-wifery Science (University of Eswatini, 2019b).

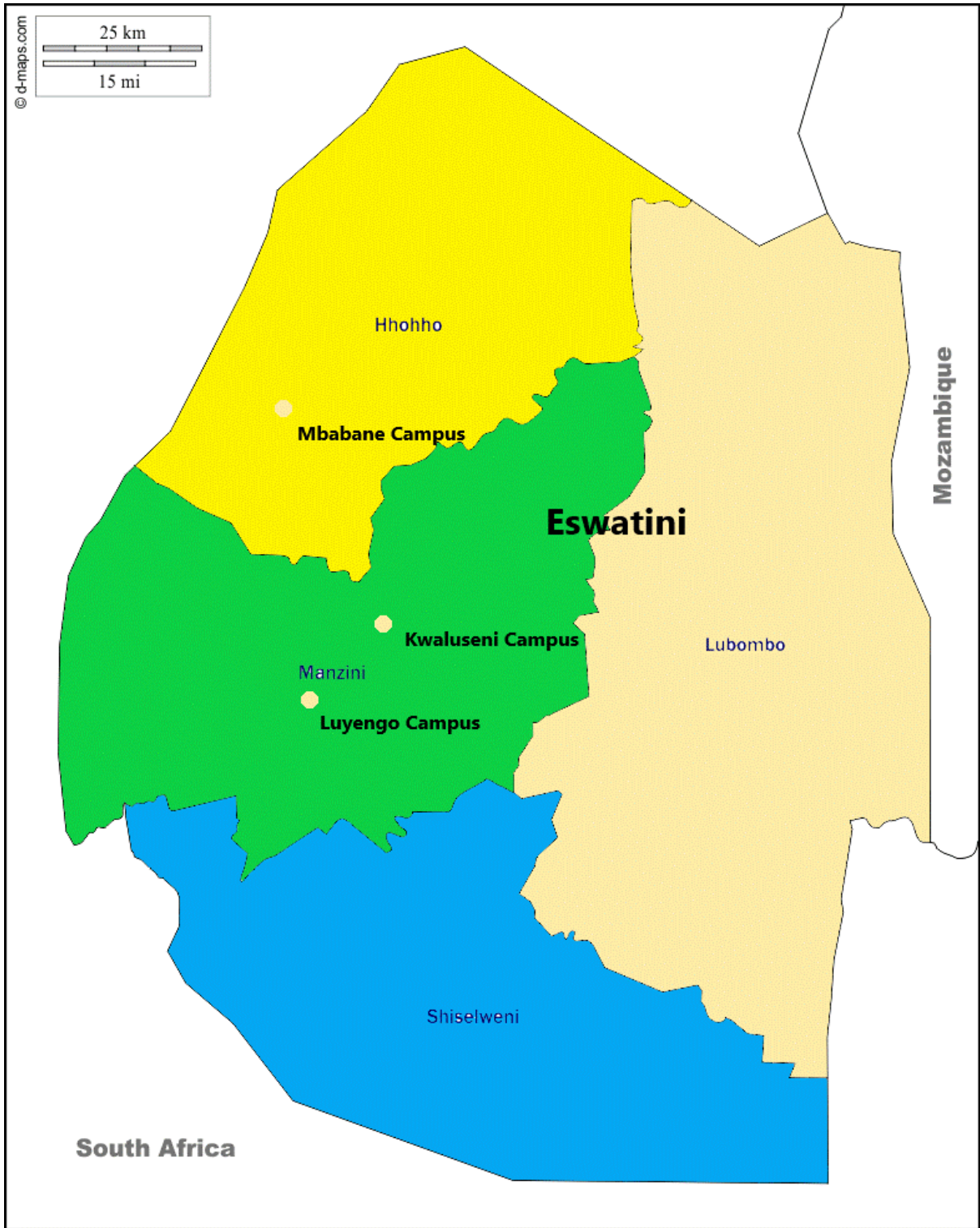


Figure 1.1: Map of Eswatini showing the University of Eswatini Campuses (Adapted from: D-maps, 2020)

1.3.1 Postgraduate programmes at UNESWA

Central to the University's strategic plan is the need to diversify programmes so as to give prospective students more options to choose from. To achieve this, the institution has gradually introduced postgraduate programmes in various academic departments. Some of these programmes are offered full time, part-time and by block release. In the 2017/2018 academic year 462 students were registered for these programmes (University of Eswatini, 2019a). At present UNESWA offers masters programmes in Agricultural and Applied Economics; Agricultural Education; Agricultural Extension; Crop Science; Animal Science; Horticulture; Business Administration (MBA); Consumer Science Education; Food Science and Technology; Adult Education; Curriculum and Teaching; Primary Education; Educational Foundation; Computational Physics; Conservation Ecology; and, Mathematics. The institution also offers PhD programmes in Agricultural Education; Agricultural and Applied Economics; and, Chemistry (University of Eswatini, 2018: 105).

1.3.2 University of Eswatini Libraries

The University of Eswatini Libraries is made up of the main library at Kwaluseni and the two branch libraries at the Luyengo and Mbabane campuses. It was established in 1982, to support the educational, research and learning functions of the institution. Collectively the three libraries function to provide access to relevant and quality academic information resources, in a wide range of formats, to the university's community in support of its teaching, learning, research and administrative functions (University of Eswatini, 2019c). It also offers the following services: reference assistance; circulation; inter-library loan; Wi-Fi and internet; institutional repository; user education as well as photocopying and printing. In addition, UNESWA Libraries offers computer facilities, designated study spaces, discussion rooms, and carrels which are only available to postgraduate students and staff members. The resources and services offered by UNESWA Libraries are also determined by the courses taught in each campus. The Luyengo Campus library offers agricultural and consumer science related resources and services whereas the Mbabane Campus library offers health science resources and services. The Kwaluseni Campus library offers a much broader array of services and resources catering for all the faculties in the university.

1.4 Research problem

Academic libraries play a vital role in any given institution and are often considered to be the heart of the university. Atkinson (2016: 135) states that traditionally library support for research was limited to the provision of library collections, as well as finding and managing information. However, this is no longer the case as research support is evolving because of the current developments within academic libraries, mainly attributed to changes in the research environment, information boom and shifts in scholarly communication (Deng & Dotson, 2015: 77). These changes have greatly impacted academic libraries because their character and the type of services they offer are steered by their patrons (Brophy, 2000: 1). Therefore, any changes that occur in academia and amongst patrons will inadvertently affect academic libraries.

As mentioned earlier, UNESWA has gradually introduced postgraduate programmes which are more research based. Hence, UNESWA Libraries now cater for a more diverse range of patrons. Having worked for UNESWA Libraries, at the Luyengo Campus library for two years as a trainee assistant librarian, the researcher observed masters and PhD students making use of the library facilities for studying and for accessing information through the various databases and electronic platforms. In view of the changes within UNESWA and the fact that academic libraries are moving away from their traditional roles and taking up new responsibilities in line with changing user needs and expectations (Parker, 2012: 1), the researcher saw a need to explore the extent of UNESWA Libraries' research support for masters and PhD students, especially that it traditionally serviced undergraduate students' information needs.

1.5 Objective of the study

The main objective of the study was to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini.

1.6 Critical questions

The following critical questions were generated to address the study's objective:

1.6.1. What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini?

1.6.2 What are the library research needs of masters and PhD students at UNESWA?

1.6.3. To what extent are these needs being met by UNESWA Libraries?

1.6.4. If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency?

1.7 Significance of the study

Given the heightened interest in academic research, academic libraries find themselves confronted with a new task of supporting researchers in a digital age. Globally academic libraries are becoming innovative by finding ways in which to best support these researchers from the start to completion of their research. This study explores how UNESWA Libraries supports researchers, in this case being masters and PhD students. Owing to the fact that effective library research support requires a good understanding of researchers' needs, which are continuously changing, it is imperative that academic libraries re-evaluate and align themselves within the research process so as to deliver services that best support researchers (Auckland, 2012: 16).

In undertaking this study, the researcher hoped to ascertain how UNESWA Libraries supports postgraduate researchers whilst providing insight into the critical role academic libraries play in advancing academic research. Its outcomes could inform the provision of research support services for postgraduate students at UNESWA Libraries as well as at other academic libraries in a similar context. Additionally, it is hoped that this study would contribute to enhancing UNESWA Libraries research support services to masters and PhD students' research, in turn benefiting the UNESWA community. Further, the outcomes of this study would also contribute to the body of literature in the area of academic libraries and research support.

1.8 Definition of relevant terms

This section explains key terms according to their use in the study:

1.8.1 Academic library

An academic library is found within higher education institutions (HEI) such as universities, colleges, and is established, functions and is funded by its parent institution to meet the information, research and curriculum needs of its community comprising of students, staff members, and faculties. These libraries form a very important part of the university (Reitz, 2014).

1.8.2 Library research support

Research support in academic libraries refers to the act of supporting institutional research endeavours by engaging with the research process for developing and aggregating discipline-based tools, providing customised services and emphasising user-centred services with the sole purposing of enhancing all scholarship and research activities within universities (Richardson et al., 2012; Hoffman, 2016).

1.8.3 Postgraduate students

A postgraduate student is defined by the *Online Merriam Webster dictionary* as a student who continues to study for an advanced qualification, that requires one to hold an undergraduate degree as part of entry requirements. Lateef, Omotoso and Owolabi (2013: 102) refer to postgraduate students as those pursuing or studying a postgraduate course, either masters, MPhil or PhD, comprising of research work that requires the services and resources of well-equipped and functional libraries.

1.9 Overview of methodology used

This study employed a convergent parallel mixed methods approach with a pragmatic worldview that allowed for the use of both qualitative and quantitative methods of data collection. A case study design was adopted for an in-depth understanding of the extent of

research support at UNESWA Libraries for master and PhD students. Schoombee's (2014: 7) research lifecycle adapted for library research support was used as supporting theory for the study. Semi-structured interviews were used to collect data from purposively sampled librarians and academics at UNESWA, whilst a structured questionnaire was used to collect data from a census of masters and PhD students at UNESWA. Thematic content analysis was used to analyse qualitative (interview) data and a statistical package was used to analyse quantitative (questionnaires) data. The study's findings are presented according to the research questions guiding the study. Side-by-side triangulation was used to present the qualitative and quantitative data. A discussion of the study's main findings in response to the critical questions guiding the study and in the context reviewed literature and the theory supporting the study, serves as a basis for drawing conclusions and making recommendations.

1.10 De-limitations of the study

Delimitations in a study refer to intentional boundaries that have been stipulated by the researcher (Maree & Van Der Westhuizen, 2009: 38). Due to the nature of the study, that is, a minor dissertation and the limited time for completion, the researcher de-limited it only to the University of Eswatini. Further, the study only focussed on the university libraries' research support for postgraduate students and not academic staff, post-doctoral fellows and other researchers. The researcher's affiliation to and experience at UNESWA and its libraries also made this an appropriate choice as a research site for this study.

1.11 Limitations to the study

Limitations are influences that the researcher cannot control that may affect the outcomes of the study (Cottrell & McKenzie, 2005: 83). A limitation to this study was time constraints. The research site for this study was the University of Eswatini, and since the researcher was based at the University of Cape Town prior to collecting data, the researcher had to travel to the research site for data collection. The data was collected at the end of semester between the months of November and December at the University of Eswatini which made it difficult to get hold of all postgraduate students at UNESWA. As a result, the questionnaire response rate was not as high as anticipated, especially for a census of masters and PhD students.

Furthermore, some of the targeted academics did not respond, and hence the researcher interviewed only those who responded and agreed to participate in this study. Notwithstanding these challenges, the response rates with the various sub-populations (see Section 4.2 of Chapter 4) were still sufficient for significant reporting.

1.12 Organisation of the research report

The research report is made up of five chapters. Chapter 1 outlines the introduction and background to the study, which highlights the changes occurring within academic libraries as a result of the changes in the research landscape and its impact on research support in academic libraries. This is followed by a contextual background of the study which is the University of Eswatini, postgraduate students at UNESWA and UNESWA Libraries. Also included in this chapter is the research problem, main objective, critical questions, significance of the study, definition of terms relevant to the study, an overview of the research methodology, and the delimitations and limitations of the study. Chapter 2 discusses the research lifecycle as a supporting theoretical framework and the literature reviewed on library research support for postgraduate students and postgraduate students' library needs. Chapter 3 documents the study design and methods which include a convergent parallel mixed methods design and, various tools and instruments employed to conduct the study. Chapter 4 presents the research findings based on analysis of data collected for the study. The final chapter (Chapter 5) offers a discussion of the main findings in relation to the objective of the study, critical questions, supporting theory and reviewed literature. Based on this discussion, conclusions are drawn, and recommendations are made in this final chapter. This is followed by references and relevant appendices.

1.13 Chapter summary

Chapter 1 laid out the foundation for this study by providing a background of research support in academic libraries. It then outlined the context of this study as it draws on the research setting, this being the University of Eswatini. It explained the research problem and the objective of this study which is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini. It then presented the significance of the study, definition of relevant terms, an overview of methodology used,

delimitations and limitations of the study, the organisation of the research report and, lastly, the chapter summary. The next chapter presents the supporting theoretical framework and the literature review on research support in academic libraries and postgraduate students' library needs.

Chapter 2: Theoretical framework and literature review

2.1 Introduction

The literature review is an organised and explicit method for identifying, evaluating, and synthesising existing volumes of completed and recorded work produced by researchers, scholars and practitioners (Fink, 2009: 3). It is a necessary component of research as it provides current and previous research findings of various studies closely related to the one being undertaken. It relates a study to the larger, ongoing dialogue in the literature, filling in gaps and extending prior studies as well as highlighting the latest developments and gaps in that area of research (Creswell & Creswell, 2018: 26). A review of the literature also provides and explains the theoretical framework for establishing the study (Bless, Higson-Smith & Sithole, 2013: 49). It reveals the discussion amongst various scholars on the relevant theories and concepts underpinning their research. For this particular study, a review of the literature disclosed that the research lifecycle can be used to explore research support in academic libraries. Therefore, the research lifecycle framework was adopted as a supporting theory guiding this study.

This chapter is divided into two sections. Part one of this chapter is a discussion of the supporting theoretical framework, the research lifecycle. Part two presents scholarly literature reviewed according to themes reflected in the study's objective and generated research questions as well as the theory supporting the study.

2.2 Theoretical framework

A theoretical framework is defined by Plano Clark and Ivankova (2016: 138) as an abstract and formalised set of assumptions and stances about the social world used to guide the design and conduct of research. It is a necessary component that assists in structuring research. Maree and Van Der Westhuizen (2009: 17) point out that a theoretical framework can be used to locate one's research, serving as a lens and perspective that aid in understanding and explaining the specific aspects of the reality being investigated. The research lifecycle has been adopted as a supporting theory for guiding this study. Several authors such as Auckland (2012), Schoombee (2014), Pasipamire (2015) and Liu (2017), have

successfully incorporated the research lifecycle as a theoretical framework to investigate research support offered in academic libraries and to determine the library needs of researchers. Their investigations are referred to in relevant aspects of this chapter.

Neuman (2006: 14) defines research as a process that requires following a sequence of steps or stages with linked activities moving from beginning to end. These stages are depicted through the research lifecycle. Gessner et al. (2017: 533) define the research lifecycle as a cyclical representation of the different stages a research project progresses through from its inception to completion. Although the sequence and steps vary according to the different authors, the research lifecycle provides clarity and understanding of the research process. Cox (2018: 143) also mentions that research lifecycles differ significantly, however they all depict how research is conceptualised.

As a supporting theoretical framework, the research lifecycle not only illustrates the different activities that occur throughout the research process, but it can also be used to plan and develop research support services. Wiklund and Voog (2013) view the research lifecycle as being useful for visualising different types of support services and the anticipated needs researchers may experience. Kwon (2017) agrees that the research lifecycle is used as an information support system for researchers as it helps them access various information and research tools.

The research lifecycle indicates the intersection that occurs during the research process between library research support services and researchers' needs. Pasipamire (2015: 65) acknowledges that the research lifecycle provides clarity about where research support is required at various stages of the research process, which enables libraries to spot potential new services. In support, Gessner et al. (2017: 533) suggest that the research lifecycle can be used as a foundation to determine what needs to be done in the library and the type of services to be provided at different stages of the research process. This suggests that the research lifecycle framework is a useful tool for assessing and determining the needs of researchers throughout the research process as well as for library research support. Hence, the research lifecycle can be used to obtain insight into the type of research support services provided in academic libraries and the needs of researchers.

Vaughan et al. (2013: 313) undertook a project to develop a research lifecycle model for library services. From this study, they discovered the following:

- The research lifecycle allows the library to foster and promote services at all the stages of the research lifecycle, which in turn allows the library to be a partner throughout the entire research process;
- The research lifecycle 'succinctly' relates library services to the different stages of research, thus demonstrating that the library provides services that fit along the cycle; and,
- The research lifecycle is flexible enough to change with the needs of the service group and the skills of the librarian. Therefore, this makes it possible to alter or modify research support services to suit any changes in the needs of researchers.

These authors point out the significance of the research lifecycle in libraries and the roles libraries play in the research lifecycle. Gessner et al. (2017: 542) explain that, as more academic libraries obtain an understanding of the research lifecycle, they will develop research-supporting systems based on it. Such supporting statements from the literature support the notion that the research lifecycle is an effective tool for establishing research support in academic libraries.

Mamtora (2013: 5) emphasises the importance of understanding the research process and being familiar with the activities that these researchers engage in, so as to ascertain the depth and breadth of the role academic librarians need to play. In agreement with this, Liu (2017: 20) points out that researchers have different needs at different stages of the research process, which presents opportunities for libraries to provide researchers with different services. Hence, knowledge of the research lifecycle enables academic libraries to understand researchers' needs, which in turn provides clarity on the type of services that can be offered.

The research lifecycle can be used as a useful analytical tool for research support and to investigate researchers' library support needs (Auckland, 2012; Schoombee, 2014; Pasipamire, 2015; Liu, 2017). For this reason, this study adopts the research lifecycle as being a suitable general framework to assess research support offered by UNESWA Libraries and to determine library research needs of masters and PhD students at UNESWA.

However, the researcher went a step further and identified a research lifecycle model specifically aligned for library research support, to provide theoretical support for this study.

2.2.1 Research activities and academic library support across the research lifecycle

Postgraduate research is complex and encompasses more than finding and digesting information. It comprises of a wide range of activities from figuring things out conceptually, to discovering, writing and sharing work with other scholars (Tancheva et al., 2016: 7). Furthermore, academic research has become more collaborative and interdisciplinary due to the new data-intensive research environment (Tenopir, Birch & Allard, 2012: 5). In support of this, Deng and Dotson (2015: 77) explain that current research has become more open and shareable, more collaborative and data intensive.

Hence, various authors have elaborated on the importance of obtaining a good understanding of the needs and behaviour of the targeted library patrons (masters and PhD students in the case of the current study) when providing research support services, so as to better assist them (Beard & Bawden, 2012: 440). The research lifecycle can be used to communicate with researchers in order to find out what their needs are at each stage of the research process. Jester (2016: 70) proposes using the research lifecycle to tailor services and support that meet the needs of researchers in the moment by applying an 'on-demand and just-in-time model'.

The research lifecycle as applied to libraries has not been coined by one author. Various scholars have modified, adapted and altered different research lifecycles to best suit their libraries. The Research Information Network (2010: 8) produced a four-stage framework of the research lifecycle comprising of idea generation, funding or approval, experimentation and results dissemination. Vaughan et al. (2013), Atkinson (2016), and Gessner et al. (2017) describe the research lifecycle as having five stages, namely: ideas development, seeking funding, proposal writing, conducting the research, and dissemination and publication. Schoombee (2014: 7) formulated a research lifecycle comprising of six stages which are: prepare, gather, create, preserve, share, and measure.

Schoombee's (2014: 7) research lifecycle as applied to academic libraries was preferred for this study as it better corresponds to the research stages to be employed in this study since

it represents the research process alongside activities that researchers engage in. This framework has been previously employed to establish research support for postgraduate students in an academic library (Pasipamire 2015), which is the main objective of the current study. Schoombee (2014: 7) found this framework to be effective in establishing the extent of research support in an academic library. The research lifecycle was appropriate in gathering information about researchers' needs throughout the research process as well as the role and services provided by libraries to support them in their research endeavours. Hence Schoombee's (2014: 7) depiction of the research lifecycle adapted for library research support (see Figure 2.1) was used as a supporting framework to address this study's critical questions.

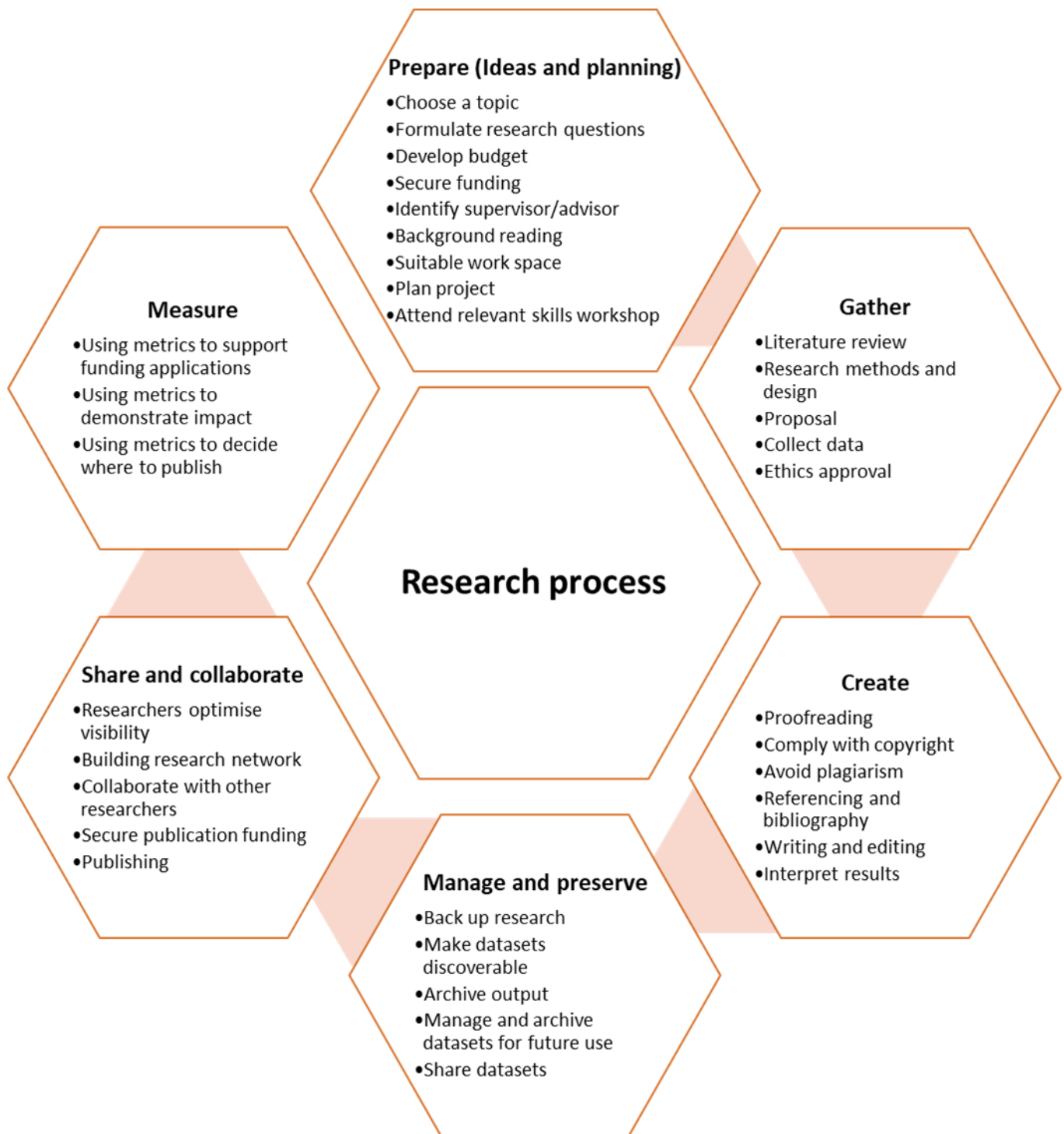


Figure 2.1: The six-phased research lifecycle and subjacent activities adapted for library research support by Schoombee (2014)

2.3 Literature review

This section presents a review of conceptual and empirical literature related to research support in academic libraries for postgraduate students. The first section covers the changing academic library landscape. This is followed by coverage of various measures incorporated by libraries to support postgraduate students' research such as information literacy training, scholarly communication and Open Access, research data management services, new roles to support researchers, research guides, and the research commons. Studies reviewed include those conducted in South Africa and other parts of Africa as well as globally. Finally, the literature review covers postgraduate students' library needs. Methodology review is incorporated in the review of literature, where necessary or relevant. A number of databases such as EbscoHost, ProQuest, Sage Journals Online, ScienceDirect, and JSTOR, were consulted to source literature for this study.

2.3.1 Changing academic library landscape

Technology advancement, networked information and the emergence of the internet as a dynamic virtual medium has redesigned the learning and research environment. Research practices have been channelled to a more collaborative, data intensive, electronic and web-based landscape (Tenopir, Hughes & Allard, 2015: 1). This has enabled researchers to create, store, process and exchange massive amounts of information in digital forms and formats (Taha, 2010: 845). Not only have these developments transformed research practices, but they have also changed the academic library environment bringing about the demand for new services. Academic libraries have accommodated these developments by changing their approach towards research support, with some libraries developing and implementing new services to support researchers. As a result, the development of research support services has evolved in direct response to the changing academic and research paradigm.

Libraries are no longer just housing and providing information resources. Auckland (2012: 4) explains that libraries are providing research support driven by researchers' needs with some libraries employing a more hands-on model of engagement with researchers. In agreement, Dempsey, Malpas and Lavoie (2014: 408) indicate that libraries now provide support for new modes of scholarly production in a digital environment. Given these

developments, academic libraries are continuously seeking ways in which they can adapt to researchers' changing needs by discovering and exploring new approaches.

In light of this, Jubb (2016: 145) claims that libraries are getting more dynamic now than in the past, in their quest to find ways to contribute towards research support whilst reflecting and engaging with wider institutional strategies. In so doing, academic libraries have been presented with opportunities to support the whole research process by incorporating the research lifecycle. Maxwell (2016: 117) asserts that the research lifecycle approach steers the academic library's strategic planning process and informs all its decision which hastens the library's journey to strategic relevance and alignment. This approach has paved a way for academic libraries to offer more student-based services throughout the research process, comprising of both new and traditional services.

2.3.2 Research support in academic libraries

Recent studies in the library literature emphasise that research support has become an integral part of academic libraries as they offer services targeted at enhancing research. This is logical given the increased interest and emphasis on institutional research. The academic library has reached out to researchers by extending the services and resources offered to support them. With particular focus on postgraduate researchers, a number of academic libraries have implemented tailored programmes to provide support and cater for their needs.

Multiple authors (Patterson, 2009; Allan, 2010; Kayongo & Helm, 2010; Rasul & Singh, 2010; Adeyemi & Oluwabiya, 2013) have examined the extent of research support in academic libraries, focussing on the effectiveness of library services and materials in meeting the needs of postgraduate students' research. A common indication amongst these studies was that libraries provided numerous research support services for postgraduate students' research. The Research Information Network and Research Libraries UK (2011: 16) identified these services to be: procurement of research materials in a wide range of formats; research information management systems; training and support for researchers; providing subject and information specialists; running institutional repositories; the provision of advisory services on where to publish; support with complying with copyright and licensing

advice/information; support for open access services, and, provision of citations analysis services. From the literature focussing on library research support for postgraduate students, the researcher extracted seven themes which are: information literacy training, research data management (RDM); introduction of new roles to support research; research guides; open access services; research impact measurement; and, research commons. The following sections discuss these themes.

2.3.2.1. Information literacy training

The continued development and widespread use of the internet and information technology has transformed how information is produced and disseminated (Islam & Sheikh, 2019: 2). This compels users to have some basic knowledge and skills to be able to effectively locate and retrieve information. Odede (2018: 32) emphasises that the use of information and communications technology (ICTs) demands a level of skill, knowledge and strategy that postgraduate students are required to possess. To cater for these needs, academic libraries provide comprehensive information literacy and specialised information programmes for postgraduate students' research endeavours (Lwehabura, 2018: 432). Hence, information literacy services are an integral part of research support for postgraduate students as it equips them with the necessary skills to use new digital technologies (Naik, 2014: 93)

Exner (2014: 465) acknowledges and emphasises that for information literacy to be effective in research support, it is essential to plan and develop it around the research process as a mode of communication with researchers. Several academic libraries have taken this mode of information literacy to provide training and assistance in the different stages of the research process. Brown et al. (2018: 344) discuss how libraries have developed specialised teams for the sole purpose of offering researcher training which is intended to develop theoretical and applied skills for successful progression in a researcher's career and also provide consultation services to offer advice when needed.

Delaney and Bates (2018: 69) conducted a study to investigate the information practices and needs of doctoral students at Ulster University in Northern Ireland. An online questionnaire was used to enquire about students' perceptions about their library research needs and the role of the library in meeting their research needs. Interviews were also

conducted with these students in order to obtain clarity about their information behaviour as well as figuring out the role of the library in their research. This study revealed that postgraduate students valued and appreciated the tutorials provided by the library on current awareness training, applying (using) social media for research and the courses on information literacy for research.

Keller (2015: 78), writing in an Australian context, notes that academic libraries provide a wide range of services such as: orientation seminars; research training workshops; research seminar series; self-help guides; one-on-one consultations; advanced information literacy programmes; and, tailored alert services. Du and Evans (2011: 102) also mention that libraries provide a varied set of information literacy training and services.

2.3.2.2 Research data management services

Computational advancement, collaborative data acquisition and data intensive research have been key facilitators in the introduction of research data management (RDM) services in academic libraries (Tenopir et al., 2014: 84). This has enabled researchers to create, store, process and exchange huge amounts of information in digital form and varying formats (Taha, 2010; Grunzke et al., 2019). Research data is therefore a crucial element in research. Because of its importance and research being data-driven, research funding agencies and national governments are advocating that grant recipients ought to preserve and make their data publicly accessible (Jackson, 2018: 603).

Chiware and Mathe (2015: 1) point out that postgraduate students, during their proposal writing, are expected to include a description of the type of data that will be created or used, the standards to be used for storing and preserving the data, guidelines for ensuring future access to the data, and the conditions for granting access. This has created a need for research data management (RDM) services. In a bid to cater for the needs arising from such developments, academic libraries now provide RDM services targeted at postgraduate students and the university research community. Chiware and Becker (2018: 2), writing in the South African context, explain that academic libraries provide packaged research data management (RDM) services encompassing: assistance with the conception of a research topic; data management planning; support with data collection services; support with data

analysis services; support with data storage and data preservation for long-term use and sharing, and data publishing. In support, Koltay (2019: 76) testifies that academic libraries support postgraduate students with RDM by offering tailored services to assist these students with planning, organising, securing (security), documenting, sharing datasets for deposit, and preserving them on short- and long-term basis.

2.3.2.3 New roles to support researchers

In a bid to make a more impactful contribution to the research process, librarians have developed and implemented new organisational structures and have appointed research librarians. Langley (2019: 14) discusses new roles assumed by librarians at Penn State University such as research data management (RDM), and scholarly communication. Skarl and Del Bosque (2018: 169) explain that these librarians partner with different faculties to better instruct and prepare postgraduate students for conducting academic research and with improving their research skills. Williams and Rowlands (2014: 122) elaborated that the various activities carried out by these librarians also entail assuming roles as open access publishers, data curators, as well as designing and developing research skills-development training.

In assuming these new roles and titles, the academic library has since been embedded in the research process, which has enabled it to offer more user-centric services (Creaser & Spezi, 2014: 192). In so doing, academic libraries work more closely with researchers, forming partnerships that allows the librarians to plan ahead, anticipate the needs of students and faculty (academics) in order to effectively support them (Johns, Price & Ungaretti, 2019: 26). The Waterford Institute of Technology Libraries (WIT) is evidence to this as it appointed a postgraduate liaison officer whose main role is to act as primary contact communications vehicle between WIT's postgraduate support unit, the library and the research postgraduate community (Hegarty, Hayden & Foley, 2009: 91). A similar situation may be found at Durham University, where the academic liaison librarians engage with researchers at a deeper level, as well as conduct one-to-one meetings particularly with doctoral students for advice and guidance on finding and using sources (Speight, 2016: 162). This ensures that the

academic library is actively engaged and up-to-date with research activities which makes it easy to provide much needed research support.

Research librarians also facilitate and provide various training workshops to enhance postgraduate students' research skills. Due to the large volume of citations and literature required for research, research librarians provide reference management services to support postgraduate students to organise, store and manage their citations. Melles and Unsworth (2015: 250) in an Australian context, mention that the University of Monash provides EndNote workshops for postgraduate students. In a similar vein, Ocholla, Mutsvunguma and Hadebe (2017: 11) confirm that the University of Zululand Library (South Africa) provides training workshops on new library resources and research related topics such as: access to e-resources; measures to avoid plagiarism; reference management tools; citation resources; publishing; social media; and, informetrics.

2.3.2.4 Research guides

Technology and creative ideas have greatly affected the ways in which libraries present themselves to users. According to Jackson and Stacey-Bates (2016: 219) academic libraries use content management systems to present research guides and highlight information resources available for various fields. Since postgraduate students operate in an electronic environment and have to extract and sieve through lots of information sources, they often require assistance with aggregated subject related resources. Subject guides tend to be very helpful in their research, hence they are an important aspect in library research support for postgraduate students (Strutin, 2008; Farkas, 2012).

Research guides are a common feature amongst academic library websites and are used to support researchers by providing segments of materials to library users. Sinkinson et al. (2012: 65) emphasise that research guides offer the following advantages to students and faculty: assistance with direction to subject-specific research sources and online tutorial links; access to research tools; the promotion of library collections and services; offer education about the research process; and, provide disciplinary context for in-depth research needs.

According to Okite-Amughero, Makgahlela and Bopape (2014: 1), some academic libraries build and develop e-information, e-resource collections and metadata which connects postgraduate students with the resources they need all in one place, and that can be accessed anywhere via the library website to support their research. Palumbo (2016: 197) also testifies that some academic libraries create resources and web-based instructional content describing the most appropriate resources and tools best suited for their research. One example of this is at Michigan State University Libraries which has created websites, bibliographies and research guides about information resources.

2.3.2.5 Scholarly communication and open access

Transformation in the system of accessing, creating, disseminating, and preserving scholarship has resulted in reformed copyright applications, the development of open access policies, and the creation of new scholarly publishing models (Hollister, 2017: 2). As a result scholarly communication has steered away from the traditional way of publishing to newer forms of scholarship dissemination including through social media and open access (Martin, 2014: 55). Given that postgraduate students are usually first timers in research and are required to produce a research report as well as start publishing, they need guidance and assistance on how to navigate this journey.

The academic library offers various forms of support to these students. According to Serrano-Vicente, Melero and Abadal (2016: 595), academic libraries create and manage institutional repositories to facilitate the dissemination, access, reuse and preservation of their respective institutional research outputs, including postgraduate students' research. This facilitates open access, which promotes and increases the visibility of an institution's research output, and simultaneously markets the institution and its research output. This is ideal for emerging researchers comprising of doctoral students who are seeking ways to build their career reputations online (Wusu, 2018: 4).

In an extension of scholarly publishing and open access, academic libraries offer dedicated scholarly communications departments which handle concerns and issues related to open access. Klain-Gabbay and Shoham (2018: 7) disclose that academic libraries partner with graduate schools and host workshops to: train these students about the various models of

open access and their benefits; provide information and assistance with issues regarding copyright (training and teaching about fair use and copyrighting materials) and publisher agreements; educating them about scholarly communication issues; and, also helping researchers to deposit their research output in institutional repositories to make it freely available for other researchers to use.

More academic libraries are actively taking part in supporting and providing open access (OA) services. Sanjeeva and Powdwal (2017: 485) noted that academic librarians in Malaysian universities utilise their library catalogue to: create links and alerts for open access work and open access resources; digitise open access versions of out-of-copyright works; develop in-house publications for open access works; and, host journals through Open Journal Systems (OJS). In a similar context, academic libraries in Finland are advocating and supporting openness by providing and offering open data usage, setting up openness helpdesks and open science integrated learning (Kiviluoto & Sinisalo, 2019: 25).

Kiel et al. (2015: 41) employed a case study of Victoria University (VU) Library to explore the concerns, challenges and success of scholarly communication projects and initiatives (research services) that seek to support researchers. This study found that VU Library provides services such as: OA week which seeks to raise OA awareness; scholarly publishing advice; institutional repository for publishing research output; and, maintain, house and provide access to the Open Journal Systems Publishing platform.

In Africa, academic libraries are also joining the trend of providing OA services although it has been a slow but steady approach. Namuleme and Kanzira (2015: 33) point out that academic libraries in Uganda provide green route publishing (that is publishing through institutional repositories). Similarly, Siyao et al. (2017: 245) conducted a qualitative study using a case study design to assess how academic libraries in Ghana, Nigeria, Tanzania and Uganda promote open science in their respective countries. The study found that academic libraries in sub-Saharan Africa support researchers in OA by offering the following services: providing storage through institutional repositories to promote OA; training and workshop programmes; specialists in OA to offer expert services; metadata creation; curation services; and, implementing the African Journal Online (AJOL) databases platform.

2.3.2.6 Research impact measurement

Academic research has become highly competitive, with researchers competing for grants and funding, as well as being required to provide evidence of their research impact (Drummond & Wartho, 2016: 271). This has sparked an increased interest in monitoring the performance of individuals, departments and institutions (Bladek, 2014: 330). Academic libraries have realised this need and now provide services to analyse research output and research impact of the institutions' staff members, departments and faculties. These packaged research performance evaluation services offered by academic libraries constitute research assessment tools such as altmetrics, bibliometrics and informetrics.

Onyancha (2018: 3) confirms that some universities in South Africa, namely, University of Cape Town, University of Zululand, University of Pretoria and University of Stellenbosch, are engaged in impact measurement; with some libraries conducting a series of user education programmes, workshops, training and seminars on impact measurement tools for their postgraduate students. Gutzman et al. (2018: 5) also confirm that librarians provide consultation and education classes about tracking publications and enhancing research impact, current awareness, and project support on research impact-related topics. Furthermore, libraries provide report templates for publication and citation data for individuals or groups upon request.

McClellan et al. (2017: 543) assert that publishing is a key metric of success for scholars in most academic disciplines. Arguably, postgraduate students intending to pursue a career in academia ought to develop knowledge about establishing themselves in their respective fields and obtain an idea of how to present their research impact. In light of this, Helmstutler (2015: 96) discusses how Georgia State University (United States of America (US)) implemented a scholarly impact outreach programme that offers scholarly impact services such as workshops, training, marketing and individual assessment targeted at both academics and postgraduate students.

2.3.2.7 Research commons

Research commons have been birthed as a result of academic libraries shifting from offering print resources to providing more electronic information. This transition has freed up spaces that were once used to store print collections (Brewerton, 2012: 97). Academic libraries have utilised these spaces to accommodate various needs of researchers. One of the striking needs that libraries actively support is that of dedicated research spaces exclusively for postgraduate students and staff members. Some libraries now provide dedicated spaces for a conducive work environment known as Research Commons. Daniels, Darch and De Jager (2010: 122) describe the Research Commons as a grand library space exclusively for postgraduate students and staff members comprising of: quiet study and writing areas; small group discussion and seminar rooms; document centre; and, permanent specialists who attend to and cater for researchers' needs.

A qualitative study conducted by Tewell et al. (2017: 81) used a survey questionnaire and in-depth semi-structured interviews to establish postgraduate and undergraduate students' research and study needs, in order to enhance research support at Long Island University Libraries (US). This study's results emphasise that postgraduate students appreciate comfortable, silent and pleasant library spaces which enable them to focus and concentrate on their research. The study's findings paved a way for libraries to redesign and renovate library spaces to accommodate these student preferences.

This section reviewed literature on research support in academic libraries and the various initiatives employed to support postgraduate research. It covered how academic libraries have re-shaped and expanded their services to cater for new research support needs. Although some services are fairly new in the library, some of the services such as information literacy training are an extension of traditional library services.

2.3.3 Postgraduate students' library needs

It is critical to understand and know the library needs of postgraduate students in order to employ strategies to meet them. As a result, numerous scholars have investigated the library needs of postgraduate students. Nwagwu (2012: 66) found in a Nigerian study that there were major variations in the information needs and practices of students in different

academic disciplines. Hence, it is difficult to summarise postgraduate students' library needs, especially because these students have different research expectations and practices from undergraduate research activities (Bussell, Hagman & Guder, 2017: 978). There are numerous studies that have investigated the library needs of postgraduate students in respective academic institutions.

Allan (2010: 96) explains that the library needs of research students have undergone rapid changes and development due to the nature of their research which requires comprehensive and up-to-date literature reviews. Hence, these students will need a wide range of information resources and information skills to locate information for their research endeavours. In agreement, Ankrah and Atuase (2018), and Iwara (2015), both reporting in the African context (Ghana and Nigeria, respectively), mention that postgraduate students need access to different types and formats of information resources to acquire current and relevant information for their academic research.

A North American study conducted by Tomaszewski (2012: 459) found that postgraduate students not only need access to information resources, but they also required extended borrowing privileges; longer library hours; library orientation sessions; a user-friendly catalogue and online search systems; and, the latest editions of reference materials. These students' needs highlight the continuous relevance of traditional library services and their usefulness in postgraduate research. In a different institutional context, a study conducted by Fong et al. (2016: 576) used an online questionnaire to establish the library needs of postgraduate students at Rutgers University-Newark (US). The study revealed that masters and doctoral students' needs differ, however, both groups emphasised the need for training and workshops on research support especially relating to publishing, managing research data and increasing individual scholarly impact.

Postgraduate students find value in the library building itself, with some authors elaborating on how these students value conducive, quiet and multi-faceted spaces with minimal distractions, to work from. Kinsley et al. (2015: 762) discovered that postgraduate students at Florida State University (US) wanted a fully furnished multipurpose space. This group of students stated that the library should have separate arrangements that will enable them to use it for a wide range of activities such as: writing; working with different types of data and

software; group discussion or consultation rooms; interview rooms, access to computers; and having a quiet relaxing atmosphere.

Studies have revealed that some postgraduate students are new in a particular institution, and therefore they are not familiar with using the library infrastructure and have no idea of the services available to them. For example, Motawah, Sen and Willet (2019: 74) found that postgraduate students in Kuwait universities were not aware of certain library services available to them. Hence the need for libraries to promote and create awareness of services available to postgraduate students to support their research.

A mixed methods study conducted by Rempel, Hussong-Christian and Mellinger (2011: 481) at Ohio University (US) investigated the research needs and learning preferences of postgraduate students. Their study revealed that postgraduate students are not only oblivious of the library services but there is also a lack of connection between them and the library as they tend to identify more with their department and departmental laboratories. Hence these students draw conclusions that there are gaps in research support services from the library. Furthermore, these authors conclude that postgraduate students need cross-campus efforts to support the different roles they carry out as student and researcher.

Liu (2017: 16) applied the research lifecycle and conducted face-to-face, structured interviews with 30 researchers at Peking University (China) when analysing library service needs of researchers at different stages of the research process. The study's findings indicated that postgraduate students need library support from the start to the completion of their research, especially with research information and discipline resource construction (subject collections), literature search trainings, RDM services and research impact assessment. In a similar study conducted by Click (2018: 154) in the US, a qualitative approach and semi-structured interviews were used to explore how students complete research assignments and their use of library resources. The researcher notes that postgraduate students need support through the entire research process and not only with finding and assessing information sources. Therefore, librarians ought to support students in all the different stages of the research process.

The literature reviewed in this section emphasised how postgraduate students in different universities experience different library needs. This highlights the importance of understanding the library needs of postgraduate students in different institutions in order to provide them with the relevant and necessary library research support. Hence, the relevance of this study using the University of Eswatini as a case study. Previous studies have adopted both qualitative and quantitative methods to ascertain the library needs of postgraduate students. This reinforces the usefulness of adopting a mixed methods approach for this study.

2.4 Chapter summary

This chapter presented the study's supporting theoretical framework, which is the research lifecycle adapted for library research support (Schoombée 2014), and the study's literature review. The chapter began by explaining the research lifecycle, giving justification for why it has been selected to support this study and how it has been used in academic libraries to establish the extent of research support. The literature review aspect of this chapter covered how academic libraries support postgraduate students and what other scholars have revealed about the library needs of postgraduate students. The next chapter presents the study's research design and methods.

Chapter 3: Research methodology

3.1 Introduction

This chapter presents the research methodology that has been used in this study. The research methodology provides insights into the specific techniques that are used to collect and analyse data in research (Leedy & Ormrod, 2015: 93), in this case being the research paradigm, research approach and the research design and methods. Babbie and Mouton (2014: 74) define a research design as the 'blueprint' or plan of how you intend to conduct the research. The research methods are the specific modes of data collection, analysis and interpretation (Creswell & Creswell, 2018: 16). The research problem and research questions determine the type of research design and methods to be employed in a research study (Babbie & Mouton, 2014: 75). It is therefore necessary to present the research objective as derived from the research problem. The main objective of this study was to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini. To achieve this objective, four critical questions were posed:

- What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini?
- What are the library research needs of masters and PhD students at UNESWA?
- To what extent are these needs being met by UNESWA Libraries?
- If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency?

3.2 Research paradigm

In research, philosophy is a collection of assumptions and values about the nature of reality and knowledge providing the foundation of research (Plano Clark & Ivankova, 2016: 62). Researchers often bring along their own philosophical understanding of the world that informs their study (Creswell & Plano Clark, 2018; Creswell & Creswell, 2018). These assumptions are often called worldviews or paradigms, with various authors using these

terms interchangeably and synonymously (Punch, 2014; Plano Clark & Ivankova, 2016; Creswell & Creswell, 2018; Creswell & Plano Clark, 2018).

Worldviews are expressed as a basic set of beliefs that guide action (Creswell & Creswell, 2018: 5), whilst paradigms are a representation of worldviews that define the nature of an individual's reality (Punch, 2014: 14). Consequently, paradigms establish specific ways of engaging in research as they provide lenses for carrying out investigations and the presentation of results. In view of this, a research paradigm is considered as a way of understanding the reality of the world. There are four main types of paradigms, namely, post-positivism and positivism, interpretivism and constructivism, transformative and, lastly, pragmatism (Plano Clark, 2014; Punch, 2014; Creswell & Creswell, 2018). This study adopted the pragmatism worldview.

The pragmatism worldview in mixed methods emanates from ordinary experience, actions, situations, consequences and the desire for knowledge as opposed to a single method or set of methods (Maxcy, 2003; Creswell & Creswell, 2018). Pragmatism is focussed on the outcomes of research and on the primary importance of the research questions rather than the methods, and uses multiple methods of data collection to inform the problem under study (Creswell & Plano Clark, 2018: 37). Therefore, this focuses the pragmatism worldview on the research problem and tends to be more inclined on 'what works' and 'real-world' practice by drawing on many ideas and diverse approaches to understand the problem (Creswell & Plano Clark, 2018: 37-39). Hence the mixed methods approach does not conform to one system of philosophy and reality, which in turn allows the use of multiple methods, different worldviews, different assumptions, as well as different forms of data collection and analysis (Creswell & Creswell, 2018: 10-11). As a result, the pragmatism worldview allows researchers to choose the methods, techniques and procedures that best meet their needs and purpose. In order to best understand the research problem and address the study's research question, the researcher applied the pragmatism worldview whilst drawing from both qualitative and quantitative approaches.

3.3 Research approach

A research approach encompasses the study's overall plan, which is guided by the research problem, and involves philosophical assumptions, the research design, and research methods (Creswell & Creswell, 2018: 3). Research approaches serve as comprehensive frameworks for conducting studies and represent differences in outlook and alternative assumptions about research (Neuman, 2006: 80). Therefore, a research approach is an essential component that shapes the direction of the study. According to Creswell and Creswell (2018: 17) there are three research approaches, namely quantitative, qualitative and mixed methods.

The qualitative approach is applied in exploring and understanding the meaning of how individuals or groups ascribe to a social or human problem (Creswell & Creswell, 2018: 4). A quantitative approach is used for testing objective theories by examining relationships among variables (Creswell & Creswell, 2018: 4). The qualitative approach involves collecting data through observing a setting and tends to be open-ended without pre-determined responses whereas the quantitative approach collects data quantitatively (numbered data) via instruments which is then analysed using statistical procedures (Creswell, 2014: 14). A mixed methods approach is used to ensure a thorough investigation of the research problem. It entails collecting both quantitative and qualitative data, integrating the two forms of data, and the use of distinct designs that may involve philosophical assumptions and theoretical frameworks (Creswell & Creswell, 2018: 4).

This study employed a mixed methods approach which involves integrating quantitative and qualitative methods of data collection and analysis to best understand the research problem (Plano Clark & Ivankova, 2016: 35). The convergent parallel mixed methods approach was selected as the best approach to investigate the research problem. Creswell and Plano Clark (2018: 68) describe a convergent mixed methods research as the collection of both qualitative and quantitative data in parallel, often at the same time, then integrating the two data sets to compare and see if they lead to similar conclusions about the problem being addressed. According to Morse (1991: 122) as cited by Creswell and Plano Clark (2011: 77) using a convergent mixed methods allows the researcher to obtain different but complementary data on the same topic.

Incorporating both qualitative and quantitative approaches ensures that the research problem is fully addressed which increases the completeness of the study (Creswell & Plano Clark, 2018: 5). In this study the quantitative aspect was used to explore the library needs of postgraduate students while the qualitative aspect was used to explore library research needs from respective supervisors' and librarians' points of view as well as to understand current research support services offered by UNESWA Libraries to these students.

Mixed methods draw from both qualitative and quantitative research, and in so doing it helps to minimise the limitations of either of these approaches. Employing two approaches in a single study makes up for shortfalls that might occur when using only one approach (Creswell & Creswell, 2018: 216). Qualitative data is rich and in-depth and provides detailed understanding of the phenomenon under investigation while quantitative data provides a generalisation of the phenomenon under study. When both methods are applied, the qualitative data tends to complement the quantitative data providing more depth and understanding. Therefore, utilising a mixed methods approach provided thorough understanding of the extent of research support at UNESWA.

3.4 Research design

The research design is a type of inquiry within qualitative, quantitative and mixed methods approaches, which provides specific directions for procedures in a research design (Creswell & Creswell, 2018: 11). The three main types of research designs often used are ethnographic studies, case studies and life histories (Babbie & Mouton, 2014: 278).

This study utilised a mixed methods approach with a case study design. A case study is a design of inquiry that develops in-depth and up-close analysis of a case in order to obtain a complete and real-world perspective of the subject under study such an organisation or small group (Yin, 2018: 5; Creswell & Creswell, 2018: 14). Babbie and Mouton (2014: 281) define case studies as an intensive investigation of a single unit, with the interaction of its context being of paramount significance. The case study design was selected because it is suitable for investigating how an individual or programme changes over time as a result of certain conditions or interventions (Leedy & Ormrod, 2015: 272). As outlined in Chapter 1, this research is focussed on exploring current research support services at UNESWA

Libraries that are offered to support masters and PhD students' research at UNESWA owing to the introduction of masters and PhD programmes at UNESWA. Employing a case study design allowed the researcher to concentrate on the selected group so as to obtain a thorough understanding of the research problem.

Plano Clark and Creswell (2016: 147) cite Luck, Jackson and Usher (2006) in emphasising that, in mixed methods, a case study is useful for enriching qualitative case descriptions with quantitative information. Hence, this study used both quantitative and qualitative methods to establish the library needs of postgraduate students at UNESWA, and qualitative methods in order to establish the extent of research support for these students by UNESWA Libraries.

3.5 Research methods

Creswell and Creswell (2018: 16) define research methods as the specific modes of data collection, analysis and interpretation. In a mixed methods case study design, data collection involves the collection of both quantitative and qualitative data so as to bring forth evidence for the case, which occurs at the same time (Creswell & Plano Clark, 2018: 199). Case study research design uses various data collection tools to gather information from all individuals in a sample (Yin, 2018: 113) because using multiple sources of data is important for depth in case studies (Babbie & Mouton, 2014: 282). This section describes the types of tools that were used to collect data for the study.

3.5.1 Population

Henn, Weinstein and Foard (2009: 153) define the population as the entire group a researcher studies. Bless, Higson-Smith and Sithole (2013: 162) refer to the population as the entire set of objects or people that a study is focused on, with the intention to determine some characteristics. The study population comprised of all librarians from the three different campus libraries, all masters and PhD students and academic staff members within the 18 academic departments that offer postgraduate studies at the University of Eswatini.

3.5.2 Sampling

Babbie and Mouton (2014: 164) view sampling as a process of selecting observations. Sampling seeks to obtain a smaller collection of units from a larger group in order to produce accurate generalisations about the population (Neuman, 2006: 219). A purposive or judgemental sampling method was used to select academics and librarians from the University of Eswatini. Purposive or judgemental sampling is a type of non-probability sampling method whereby the researcher uses own judgement in selecting sample members (Babbie & Mouton, 2014: 202) with regards to their characteristics. Bless, Higson-Smith and Sithole (2013: 176) advise that when selecting a sample in qualitative research, the researcher selects participants based on some specific criteria that is judged to be essential and rich in information.

Academics were purposively selected on the basis of being an associate professor or professor (see Table 3.2) because of their extensive experience in supervising masters and PhD students' research. Consequently, they can provide rich data in terms of the library research needs that postgraduate students may have whilst conducting their research. Only librarians who support and are actively engaged with postgraduate students were selected to participate in this research as it is assumed they are in a position to best describe the current research support services provided in their respective libraries to support masters and PhD students at UNESWA (see Table 3.1).

In order to ensure maximum return rate of questionnaires, a census, which is the study of every member of a given population (Gray, 2014: 237), was conducted for all masters and PhD students at UNESWA (see Table 3.3).

Table 3.1: Population and sample for librarians

Library	Number of librarians	Number of purposively selected librarians
Kwaluseni Campus	7	3
Luyengo Campus	2	1
Mbabane Campus	2	1
Total	11	5

Table 3.2: Population and samples for academics

Academic department	Academic staff		Purposive sample
	A/Prof.	Prof.	
Adult Education	5	-	-
Agricultural and Biosystems Engineering	6	-	1
Agricultural Economics	9	-	3
Agricultural Education and Extension	4	2	1
Animal Science	8	-	1
Biological Sciences	7	1	1
Business Administration	10	2	-
Chemistry	10	1	-
Consumer Science Education and Community Development	4	-	-
Crop Production	4	1	2
Curriculum and Teaching	11		1
Educational Foundation and Management	9	-	1
Food Nutrition Sciences	3	-	1
General Nursing Science	15	2	-
Geography, Environmental Science & Planning	9	2	-
History	6	-	1
Horticulture	2	1	2
Primary Education	5	-	-
Total	127	12	15

Table 3.3: Postgraduate student population

Academic department	Students	
	Masters	PhD
Adult Education	13	-
Agricultural and Biosystems Engineering	5	-
Agricultural Economics	49	7
Agricultural Education and Extension	37	11
Animal Science	13	-
Biological Sciences	8	-
Business Administration	34	-
Chemistry	11	-
Consumer Science Education and Community Development	21	-
Crop Production	13	-
Curriculum and Teaching	92	-
Educational Foundation and Management	50	-
Food Nutrition Sciences	13	-
General Nursing Science	27	-
Geography, Environmental Science & Planning	27	-
History	7	-
Horticulture	10	-
Primary Education	14	-
Total	444	18

3.5.3 Data collection

In a case study design, extensive data is collected about the phenomenon under investigation using interviews, observations, and questionnaires (Yin, 2018: 116). The pragmatism worldview allows the use of different methods of data collection to answer the research question. In this study, both qualitative and quantitative data were collected. Quantitative data collection is often pre-planned, structured and designed to ensure comparability of data across all participants (Maxwell & Loomis, 2003: 254). Data was collected using a structured, closed-ended questionnaire which was administered to a census of all masters and PhD students to ensure a maximum return rate. Qualitative data collection tends to be more open-ended, flexible, and inductive, with the data often being textual descriptions that may either be written notes or recording of verbal data (Maxwell & Loomis, 2003: 254). Face-to-face individual semi-structured, open-ended interviews were conducted with purposively sampled academics and librarians from UNESWA. Data collection began on 25th November 2019 and ended on 28th February 2020.

3.5.4 Research instruments

Research instruments are tools used to gather data as part of a research project such as questionnaires, surveys or observation schedules (Gray, 2014: 684). This study used a questionnaire to obtain masters and PhD students' views pertaining to what they need from the library, and the extent to which they believe UNESWA Libraries meets these needs. Semi-structured interviews were conducted with academics to determine their perceptions about what they consider to be the library needs of masters and PhD students. Another set of semi-structured interviews were conducted with librarians at UNESWA Libraries to find out what research support services are offered to the postgraduate students.

3.5.4.1 Questionnaire

A questionnaire is a research data gathering tool through which people are asked to respond to the same set of questions in a pre-determined order (Gray, 2014: 352). This study opted to use a questionnaire (quantitative) because it can be distributed to a large number of people (Leedy & Ormrod, 2019: 154), in this case being a census of masters and PhD students UNESWA. A structured paper-based questionnaire with closed-ended questions (see Appendix C) was administered to masters and PhD students at UNESWA. The questionnaire contained a list of closed-ended questions which provide a greater uniformity of responses and are easily processed (Babbie & Mouton, 2014: 233). Questionnaires were self-administered to masters and PhD students. As a step to ensure a maximum return rate, the researcher liaised with the different departmental secretaries and academics to encourage completion of questionnaires. Upon requests some questionnaires were sent via email and WhatsApp.

The design of the questionnaire was based on the study's critical questions and the supporting theory (Schoombee's (2014: 7) research lifecycle adapted for library research support) guiding this study. A mapping of the critical questions and relevant theory to sources of data and data collection instruments (see Appendix F) was used as a guide to carefully construct questions that will address the study's critical questions. A preamble was attached to the questionnaire which provided clarity about the study, objectives, purpose, assuring confidentiality, anonymity and voluntary participation. Participants were provided with questions based on pre-determined responses, restricting their options to the list

provided (Creswell & Plano Clark, 2018: 179). The questionnaire presents a list of the different library services that are provided in each stage of the research process (see Appendix C).

3.5.4.1.1 Rating scales

The rating scales are used when assessing attitudes in order to obtain a single score which indicates both the direction and intensity of a person's attitude (Ganga & Maphalala, 2015: 327). Rating scales are also used for evaluating ranges such as inadequate to excellent, never to always, and strongly disapprove to strongly approve (Leedy & Ormrod, 2015: 161). The Likert rating scale with the five-point format, strongly agree to strongly disagree, was used in constructing questions for this study. Rating scales allow the researcher to ask questions and a list of relevant responses are provided, requiring respondents to select from the range which best describes their perceptions. The Likert scale is considered an effective tool that can be used in questionnaires because it has high reliability and successful adaptation to measure many types of characteristics (Leedy & Ormrod, 2015: 161).

3.5.4.2 Interviews

An interview is a verbal exchange in which one person, the interviewer, attempts to acquire information from and gain an understanding of another person, the interviewee (Gray, 2014: 382). Interviews are an important source of case study evidence because most cases are about human affairs or actions, and therefore interviews provide important insights to such affairs (Yin, 2018: 121). This study conducted two different sets of interviews, one with librarians at UNESWA Libraries and another with academics at UNESWA. Semi-structured interviews were designed based on the study's critical questions and the supporting theory (Schoombee's 2014 research lifecycle adapted for library research support) informing this study. All questions were open-ended to allow the researcher to probe further and for respondents to describe their experiences (Bless, Higson-Smith & Sithole, 2013: 58). It was necessary to explain the supporting theory in the semi-structured interview guide (see Appendices A and B) in order to inform respondents about Schoombee's (2014) research lifecycle and also to provide clarity on the concepts of the stages and activities in the

research lifecycle. A preamble was attached to the questionnaire which provided clarity about the study, objectives, assuring confidentiality, anonymity and voluntary participation. Respondents were provided with informed consent forms (see Appendices D and E) before conducting interviews. Mapping of the critical questions and relevant theory to sources of data and data collection instruments (see Appendix F) served as a guide in constructing questions that addressed the study's critical questions.

Academics were asked questions pertaining to library needs that masters and PhD students might encounter throughout the research process, to obtain in-depth understanding about the research problem. Similarly, interviews were also conducted with librarians to establish the available research support services offered to masters and PhD students in each stage of the research lifecycle. Interviews were conducted on the basis of appointments in the librarians' and academics' offices. Interviews were recorded (with permission) in order to verify notes, obtain additional insight on findings as well as ensure the validity of findings.

3.5.5 Pre-testing instruments

Pre-testing instruments are important for establishing the content validity of scores on an instrument and evaluating the internal consistency of items (Creswell & Creswell, 2018: 154). It involves testing research instruments to ensure that questions are clear and able to solicit the desired information before conducting the study (Leedy & Ormrod, 2015: 169). Pre-testing also helps identify problems and glitches in the instruments that may impede the instruments' ability to effectively collect data (Ganga & Maphalala, 2015: 330). Therefore, conducting pre-test tests enables the researcher to make necessary adjustments and changes in the instruments.

Pre-testing the data collection instruments was conducted within one week (12 – 19 November 2019). The researcher randomly selected three masters and two PhD students from the University of Cape Town (UCT), where the study is registered and requested their participation in responding to the questionnaires. For the interviews, the researcher requested one librarian from UCT Libraries and one Associate Professor from the School of Economics (UCT) to participate in the pre-test to the study. Before administering questionnaires and conducting interviews, the researcher explained the study to the

selected pre-test participants, and the relevance of conducting a pre-test. Questionnaires were administered to students and they were returned via email. Two masters students indicated that they were not aware of what metrics are and needed clarity. The interviewed librarian highlighted that the interview was a bit lengthy. The researcher explained that it was necessary to provide clarity for better understanding to ensure all participants were familiar with the theoretical framework (Schoombee's (2014: 7) research lifecycle adapted for library research support) and the different stages of the research lifecycle. Due to time constraints (explained in Section 1.11- Limitations of the study) and the fact that some students returned the questionnaires when the researcher had already started collecting data, the questionnaire could not be revised. However, the researcher took this into consideration and provided explanation to students when distributing questionnaires including those sent online via email and WhatsApp.

3.6 Validity and reliability

Validity and reliability are crucial components in any research study which seek to ensure the study's findings are credible (Leedy & Ormrod, 2019: 103). These concepts are important for defining and measuring bias and distortion. Reliability is the degree to which an instrument consistently yields the same results when the entity being assessed has not changed (Leedy & Ormrod, 2019: 107). Reliability can be attained by ensuring research instruments are clear, concise, unambiguous and simple to complete (Gray, 2014: 372). To attain this, the researcher pre-tested data collection instruments and considered feedback and as it had not been possible to change the questionnaire, provided an alternative by explaining to questionnaire respondents what metrics were. To further ensure reliability, the researcher also recorded and took notes during interviews for accurately capturing data. Validity refers to the extent to which an empirical measure adequately reflects the real meaning of the concept under consideration (Babbie, 2016: 148). To ensure validity, the researcher used multiple data collection methods (interviews and questionnaires), as well as triangulating the collected data to establish validity.

3.7 Data analysis and presentation

Data analysis is a process of looking for patterns in the datasets in order to make sense out of it (Wolhuter, 2015: 157). This process involves the application of analytic techniques to both quantitative and qualitative data as well as integrating the two forms of data in order to assess how the information addresses the studies research questions (Creswell & Plano Clark, 2018: 218). The quantitative data from questionnaires was first coded and grouped according to the study's critical questions in Microsoft Excel. This data was then imported into the *Statistical Package for the Social Sciences* (SPSS version 20) for further analyses. Qualitative data analysis is more diverse and provides in-depth understanding of single cases (Maxwell & Loomis, 2003: 254). According to Creswell and Creswell (2018: 219) thematic analysis focuses on identifying important information in the data and categorising it into themes in relation to the research questions and phenomenon under study. Thematic content analysis was used to analyse qualitative data from interviews with librarians and academics. Interviews were first transcribed and presented in Microsoft Word. From here the researcher compared responses and extracted themes that emerged which were then grouped in relation to the study's critical questions and supporting theory guiding this study. A side-by-side triangulation was used to present the qualitative and quantitative aspects of the study. Graphical presentation in the form of graphs, pie charts, and tables, as well as narratives, where applicable, were used to present the study's findings.

3.8 Triangulation

Creswell and Creswell (2018: 14) define triangulation as a means for seeking convergence across qualitative and quantitative methods. Since this study collected qualitative and quantitative data, it was essential to seek convergence between the different data. Punch (2014: 309) states that the importance of triangulation is to obtain complementary quantitative and qualitative data on the same topic in order to bring together the different strengths of the two methods. This study combined approaches and methods which assisted in overcoming the deficiencies that flow from one method (Babbie & Mouton, 2014: 275). Additionally, data obtained through questionnaires was checked against the data obtained

from interview respondents (librarians and academics) to compare whether they lead to similar conclusions.

3.9 Ethical considerations

Research ethics emphasises the humane and sensitive treatment of research participants who may be placed at varying degrees of risk by research procedures (Bless, Higson-Smith & Sithole, 2013: 28). Ethical considerations are very important in research as they ensure minimal risk to participants. The researcher applied for ethics clearance from the University of Cape Town (where the study was registered) (see Appendix G) and for permission from the University of Eswatini to conduct the study on its respective campuses (see Appendix H). In order to ensure this study was ethically conducted, participants were given an informed consent form (see Appendices D and E), which is a statement that communicates the ethical norms of voluntary participation and ensures the safety of participants by describing the nature of the research project, as well as the nature of one's participation in it, its purpose and benefits (Babbie, 2016: 64). The researcher communicated to participants that their participation was voluntary and they were informed that they were free to withdraw from participating at any point of the study. The researcher ensured that the participants' data was treated with confidentiality and that they remained anonymous during the reporting of findings. Personal information was not collected when participants completed questionnaires in order to protect their identity. The researcher requested the permission of participants to record them during interviews. Participants were informed prior to the interviews that all collected data will be stored securely throughout the study.

3.10 Chapter summary

This chapter outlined and described the study's research methodology. The first part of this chapter discussed the selected research paradigm (pragmatism) and research approach (mixed methods). Following this is a discussion of the selected research design (case study), chosen for investigating the extent of research support for masters and PhD students at UNESWA. This chapter also explained the study's research methods, discussing the tools and procedures that were used to collect data. The chapter discussed the study's research

instruments (semi-structured interviews and structured questionnaires), as well as provided an explanation of how they were developed, pre-tested and administered. Lastly, the chapter discussed how issues of validity and reliability were attended to, how data was analysed, presented and triangulated, as well as the study's ethical considerations. The next chapter presents the study's findings.

Chapter 4: Presentation of findings

4.1 Introduction

Chapter 3 presented the research methodology adopted for this study. This study employed a mixed methods approach and case study design to address the objective of the study. The objective of the study was to ascertain the extent of research support by University of Eswatini (UNESWA) Libraries for masters and PhD students at the University of Eswatini. Four critical questions were generated to address the objective of the study:

- What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini?
- What are the library research needs of masters and PhD students at UNESWA?
- To what extent are these needs being met by UNESWA Libraries?
- If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency?

This chapter presents findings from interviews with academics and librarians; and questionnaire survey responses from masters and PhD students at UNESWA which collectively address these critical questions and the study's objective. Qualitative data was transcribed and analysed using content analysis. The *Statistical Package for the Social Sciences (SPSS version 20)* was used to code and analyse quantitative data.

4.2 Return rates

A paper-based questionnaire (see Appendix C) was administered to a census of 462 UNESWA masters and PhD students. A total of 248 questionnaires (54%) were returned, however 10 questionnaires were spoilt as they were incomplete, and included in these 10 there were five with no programme indicated and therefore unusable. The eventual number of completed questionnaires was 238 giving an effective return rate of 51.5%. According to Rubin and Babbie (2009: 169) a response rate of at least 50% is usually considered adequate for analysis and reporting. Hence the yielded questionnaire return rate was regarded as acceptable for reporting of findings. For the interviews, while 15 academics and five (5)

librarians from UNESWA were initially targeted, 10 (67%) academics and 5 (100%) librarians were eventually interviewed.

4.3 Presentation of findings

The findings in this chapter are presented according to the critical questions guiding the study. Schoombee's (2014: 7) research lifecycle adapted for library research support formed the basis of this study as it was used to inform the study and the design of the research instruments (see Appendices A, B and C). A side-by-side triangulation has been used to present the qualitative and quantitative aspects of the study. Graphs, pie charts, tables, and narratives where applicable, have been used for effective presentation of findings. Descriptive statistics such as percentages, frequency, means and standard deviation have been used to present quantitative and qualitative data. Where applicable, percentages have been rounded off to the nearest whole and therefore totals might sometimes be presented at 100% but are actually slightly less or slightly more. It should also be noted that in instances of small numbers, as academic convention guides, percentages are not necessarily presented as the frequencies themselves reveal a picture.

4.3.1 Biographical information

This section presents the biographical information for librarians, academics and masters and PhD students.

4.3.1.1 Biographical information for UNESWA librarians interviewed

The librarians' biographical information focussed on five aspects: campus library employed in, years employed at UNESWA Libraries, job title, highest academic qualification, and highest LIS qualification (see Appendix A). Librarians' responses to these questions are captured in Table 4.1. Interviewed librarians were spread across the three UNESWA campus libraries, hence giving a good representation of the various campus libraries. All five librarians have extensive working experience (with four out of five ranging from 16-25 years) in UNESWA Libraries. All five librarians have a minimum qualification of masters in LIS.

These biographical features are reflective of potential depth and richness in their input to this study.

Table 4.1: Biographical information for UNESWA librarians interviewed (N=5)

Librarian	Campus library	No. of years with UNESWA	Job title	Highest academic qualification	Highest LIS qualification
Librarian 1	Kwaluseni	16	Assistant Librarian (reader services)	PhD	PhD
Librarian 2	Kwaluseni	9	Assistant Librarian (cataloguing)	PhD	PhD
Librarian 3	Kwaluseni	25	Assistant Librarian (reader services)	Masters	Masters
Librarian 4	Luyengo	16	Senior Assistant Librarian	Masters	Masters
Librarian 5	Mbabane	20	Assistant Librarian	Masters	Masters

4.3.1.2 Biographical information for UNESWA academics interviewed

Biographical data obtained from academics at UNESWA (see Table 4.2), focussed on four aspects: academic rank, academic department, masters students supervised to completion, and PhD students supervised to completion (see Appendix B). Seventy percent (70%) of the respondents were Professors and 30% Associate Professors. All 10 (100%) academics interviewed indicated that they have supervised to completion masters students and only two (20%) academics stated that they have not supervised PhD students to completion as their academic departments have only recently introduced masters programmes. This is a positive indication that the selected academics' research and supervision experience would have enabled them to share good insight into library research support and library needs of masters and PhD students.

Table 4.2: Biographical information for UNESWA academics interviewed (N=10)

Academic	Academic rank	Academic department	No. of masters students supervised to completion	No. of PhD students supervised to completion
Academic 1	Professor	Agricultural and Biosystems Engineering (ABE)	10	4
Academic 2	Professor	Agricultural Economics	18	6
Academic 3	Professor	Agricultural Education and Extension	20	2
Academic 4	Professor	Agronomy	11	3
Academic 5	Associate Professor	Business Administration	13	1
Academic 6	Professor	Crop Science	15	2
Academic 7	Associate Professor	Engineering	8	2
Academic 8	Professor	Horticulture	6	7
Academic 9	Associate Professor	Maths	4	0
Academic 10	Professor	Nursing Sciences	2	0

4.3.1.3: Biographical information for UNESWA masters and PhD students

The questionnaire (Appendix C) required masters and PhD students' biographical details: programme currently enrolled in, study option (full-time or part-time) and year of masters or PhD study currently in. There were 230 masters and 8 PhD student respondents. This was no surprise as there are fewer PhD programmes offered at UNESWA because as explained in Section 1.3.1 of Chapter 1, UNESWA has only recently embarked on expanding its programmes through gradual introduction of postgraduate programmes in various academic departments. The highest programme frequency (see Table 4.3) is the Masters of Education in Curriculum and Teaching with 41 (17%) respondents, whilst the lowest frequency is the Masters of Science in Textile with 1 (0.5%) respondent.

Table 4.3: Masters and PhD students' responses by programme (N=238)

Programme	Frequency	Percentage
Master of Education in Curriculum & Teaching (M.Ed. Curr. & Teach.)	41	17%
Master of Education in Educational Foundations & Management (M.Ed Ed. Found. & Mgt)	27	11%
Master of Science in Agricultural and Applied Economics (M.Sc. Agric. & App. Econ)	21	9%
Master of Business Administration (MBA)	16	7%
Master of Nursing Science in Family Nurse Practice (M.NSc. FNP)	16	7%
Master of Science in Consumer Science Education (M.Sc. COSE)	14	6%
Master of Science in Environmental Resources Management (M.Sc. ERM)	11	5%
Master of Science in Agricultural Education (M.Sc. Agric. Ed.)	10	4%
Master of Science in Mathematics (M.Sc. Maths)	10	4%
Master of Science in Chemistry (M.Sc. Chemistry)	8	3%
Master of Science in Food Science & Technology (M.Sc. FST)	8	3%
Master of Science in Horticulture (M.Sc. Hort.)	8	3%
Master of Education in Adult Education (M.Ed. Adult Ed.)	6	3%
Master of Science in Crop Science (M.Sc. Crop Science)	6	3%
Master of Education in Primary Education (M.Ed. Primary)	6	3%
Master of Science in Agricultural Extension (M.Sc. Agric. Ext.)	5	2%
Master of Science in Computational Physics (M.Sc. Comp. Physics)	5	2%
Master of Science in Crop Protection (M.Sc. Crop Protection)	5	2%
Doctor of Philosophy in Agricultural Education (Ph.D. Ag. Ed.)	5	2%
Master of Science in Animal Science (M.Sc. Ani. Sc.)	3	1.5%
Master of Arts in History (M.A. History)	3	1.5%
Doctor of Philosophy in Agricultural & Applied Economics (Ph.D. Ag. & App. Econ.)	3	1.5%
Master of Science in Textiles (M.Sc. Textiles)	1	0.5%
Total	238	100%

To best understand library research support at UNESWA Libraries, it was imperative to also obtain respondents' study option. Figure 4.1 shows the distribution of masters students between part-time and full-time study. The majority of respondents, 150 (65%), were part-time and 80 (35%) were full-time.

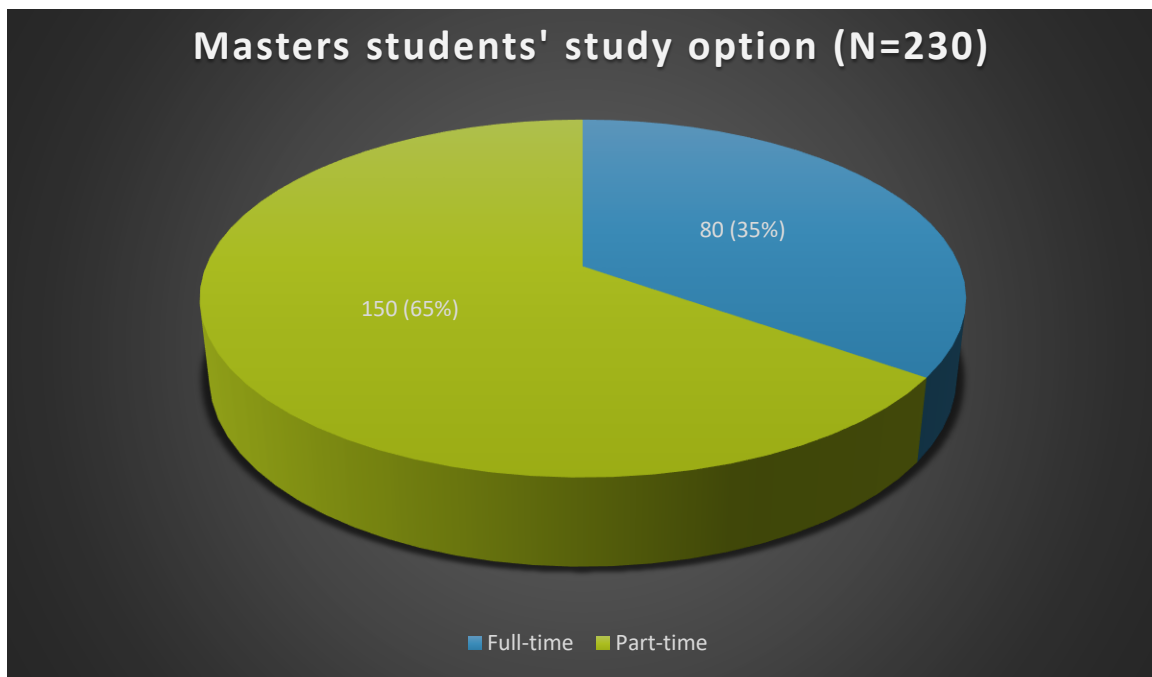


Figure 4.1: Masters students' study option

Figure 4.2 shows the distribution of PhD students between part-time and full-time study options. The majority of the PhD respondents, 7 (87%), were part-time and only one (13%) was full-time.

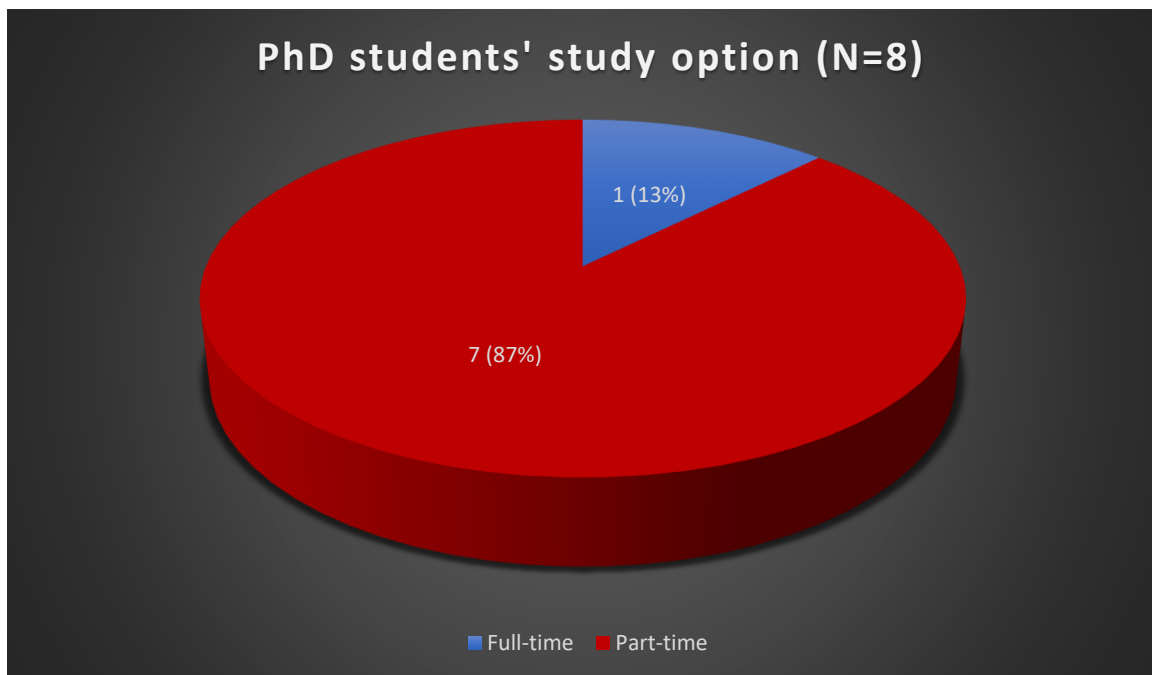


Figure 4.2: PhD students' study option

Questionnaire respondents were asked to indicate their current year of study. Figure 4.3 shows the breakdown of respondents by study year. Most of the respondents, 104 (44%) were in their second year of masters. This was followed by 7 (87%) were in their second year of study and one (1) PhD student in the first year. Surprisingly, there were no 4th year masters student respondents.

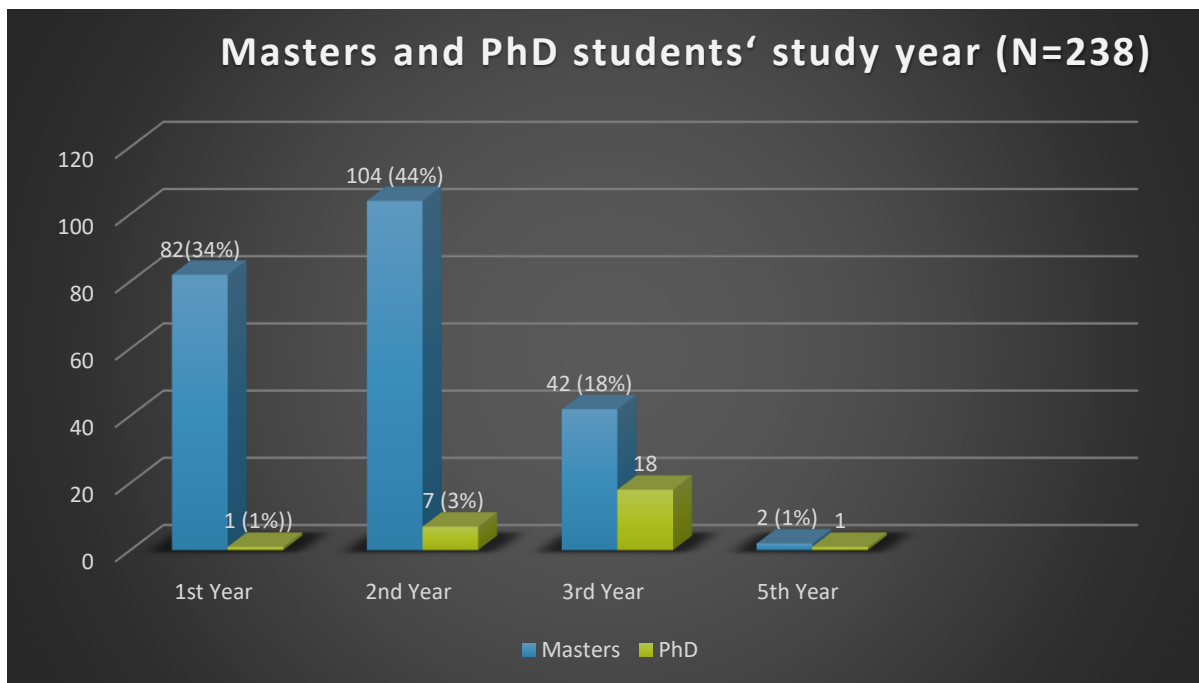


Figure 4.3: Masters and PhD students' study year

4.4 Research support services provided by UNESWA Libraries

This section presents findings that address the study's critical question which sought to establish the current research support services provided by UNESWA Libraries. It was crucial to understand what library research support services are provided by UNESWA Libraries to masters and PhD students. Librarians were asked through semi-structured interviews to share information about the current research support services provided by their respective libraries. Masters and PhD students, through a structured questionnaire survey were asked to identify the different research support services provided by UNESWA Libraries at each

stage of the research lifecycle as adapted for library research support by Schoombee (2014) - see Appendix C.

4.4.1. Research support services provided by UNESWA Libraries as identified by librarians

The three UNESWA campus libraries work collaboratively to provide a centralised suite of information services and resources in support of masters and PhD students' research. Since these services are centrally located, the various library departments work together to manage and provide research support as evident in Table 4.4. UNESWA Libraries research support is characterised as mostly traditional. Librarian 1 highlighted that "although the library provides support to masters and PhD students, research support is still at its infancy owing to the recent introduction of masters and PhD programmes, and hence the library currently provides a limited number of services in support of these students research". Despite UNESWA Libraries having recently began research support for masters and PhD students (refer to Section 1.3.1 of Chapter 1), librarians indicated that UNESWA Libraries currently provides research support for these students in the first five stages of the research lifecycle: Prepare (Ideas and planning); Gather; Create; Manage; and, Share and collaborate. Librarian 2 explained that "the library is mostly engaged in the early stages of the research lifecycle, serving to guide and point students to the required resources needed for their research". In support of this statement, another librarian stated that "the library is not hands-on with the provision of some of the services, such as data collection, data analysis and research data management as they are provided by the various academic departments". However, UNESWA Libraries "provides facilities, library instruction classes and any information retrieval classes that will enable masters and PhD students to effectively access and retrieve information from different databases, the web as well from any other resources available in the library". In addition to these research support services, one of the campus librarians highlighted that UNESWA Libraries also provides "workshops and trainings on information literacy, e-resources training, and publishing, upon request by the Institute of Postgraduate Studies". All the librarians interviewed stated that they have an 'open-door' policy and are always available to support masters and PhD students' research.

Table 4.4: Research support services provided by UNESWA Libraries as identified by librarians (N=5)

Stages in the research lifecycle (Schoombee, 2014: 7)	Library research support services provided by UNESWA Libraries
Prepare (Ideas and planning)	<ul style="list-style-type: none"> • Study carrels designated for masters and PhD students • Information literacy classes • Provide access to a wide range of databases, journals, and e-resources • Provide orientation to show facilities and the different library resources • Provide a cumulative list of past theses and dissertations which assists students with selecting a topic • Assist students with selecting and narrowing their research topic, on request • Avail WIFI and computers with internet access
Gather	<ul style="list-style-type: none"> • Assisting with narrowing or broadening of search strategies • Extended borrowing privileges • Provide literature sources such as books and journals • Provide vast range of research methodology and academic writing books • Interlibrary loans
Create	<ul style="list-style-type: none"> • Provide advice and guidance on complying with copyright through information literacy classes
Manage and preserve	<ul style="list-style-type: none"> • Depositing completed masters and PhD research output in UNESWA's Institutional Repository (IR)
Share and collaborate	<ul style="list-style-type: none"> • Promote visibility within UNESWA community through IR • Issue ISBNs to authors of monographs • Provide publishing workshops together with publication houses for researchers • Provide advice and guidance on how to get published with <i>UNESWA Journal of Agriculture</i>

An additional question (see Appendix A) was posed which sought to find out if there are any other library services outside of these stages of the research process that have been specifically designed by UNESWA Libraries to support masters and PhD students. All five librarians emphasised that at present UNESWA Libraries does not have any specifically designed services as research support is still at its infancy, however they hope the library might provide such services in the future. Interestingly one librarian pointed out that "none

that I can think of as the model fully covers the research process and the services we provide”.

As part of probing the research support services provided, the librarians were asked if UNESWA Libraries partners with any other academic departments at UNESWA to collaboratively support masters and PhD students’ research. Librarians responded affirmatively to this question explaining that UNESWA Libraries works closely with the Institute of Postgraduate Studies and the various academic departments through liaising for research materials and whenever they have any needs related to the library such as requesting the library to conduct information literacy training for masters and PhD students. One librarian clarified that “this specific library offers library instruction or user education in collaboration with academic departments, if lecturer feels students are not well equipped with research, retrieving information from databases or searching for information online especially when students cite old literature”. Another librarian detailed that “we have a close relationship with publishers or vendors; we don’t directly provide training, they come to train staff on how to conduct research and publish articles which trickles down to students as they transfer and teach their students the skills obtained from the trainings”.

4.4.2 Research support services provided by UNESWA Libraries as identified by masters and PhD students

Table 4.5 shows masters and PhD students’ selection of the research support services provided by UNESWA Libraries. The results are as per the number of respondents that selected a particular research support service. Students had varying perceptions about the services provided by UNESWA Libraries in each stage of the research lifecycle as evident in the obtained frequencies for each service. The research support services with the highest frequency selection were background reading (95%), suitable workspaces (90%), literature review (100%), complying with copyright (81%), avoiding plagiarism (72%), backing up research (61%) and archiving output (91%). This is an indication that the majority of responding students agree that UNESWA Libraries provides these research support services. Masters and PhD students did not select any research support services in the ‘measure’ stage as well as the following four services belonging to other stages in the research

process: proofreading, writing and editing, and securing publication funding. Hence, they all had a nil frequency, a hint that the library might not be providing these specific services.

Table 4.5: Research support services provided by UNESWA Libraries as identified by masters and PhD students (N=238)

Stages in the research lifecycle (Schoombee, 2014)	Library research support services Support/resources for:	Yes	
		Frequency	Percentage
Prepare (Ideas and planning)	Choosing a topic	10	4%
	Formulating research question	8	3%
	Background reading	227	95%
	Securing funding	2	1%
	Suitable workspaces	215	90%
	Planning the project	30	13%
	Relevant skills training	103	43%
Gather	Literature review	238	100%
	Research methods and design	110	46%
	Research proposal	84	35%
	Collecting data	7	3%
	Ethics approval	107	45%
Create	Proofreading	0	0
	Complying with copyright	192	81%
	Avoiding plagiarism	172	72%
	Referencing and bibliography	39	16%
	Writing and editing	0	0
	Interpreting results	2	1%
Manage and preserve	Backing up research	146	61%
	Making datasets discoverable	13	5%
	Archiving output	217	91%
	Managing and archiving datasets for future use	13	5%
	Sharing datasets	23	10%
Share and collaborate	Research visibility	101	42%
	Building a research network	5	2%
	Collaborating with other researchers	7	3%
	Securing publication funding	0	0
	Publishing	9	4%
Measure	Metrics to support funding applications	0	0
	Metrics to demonstrate research impact	0	0
	Metrics to decide where to publish	0	0

In summary, UNESWA Libraries appears to be playing a significant role in supporting masters and PhD students research as evident in the responses provided by librarians interviewed and the students themselves. Although UNESWA Libraries' research support is concentrated in the first five stages of the research lifecycle (Schoombee, 2014: 7), it appears to be providing a range of library research support services for masters and PhD students' research.

4.5 Library research needs of UNESWA masters and PhD students

This section presents findings that address the critical question on what are the library research needs of UNESWA masters and PhD students. The data was captured through interviews with UNESWA librarians (see Appendix A) and academics (see Appendix B), and via a questionnaire survey of UNESWA masters and PhD students (see Appendix C).

4.5.1 Library research needs of UNESWA masters and PhD students as identified by UNESWA librarians

The interviewed librarians' views of masters and PhD students' library research needs are captured in Table 4.6. Four of the interviewed librarians detailed that through their experience with supporting masters and PhD students, they have come to understand that these students have library research needs throughout the research process. The librarians revealed that as students progress with their research, moving on to the next stage, their needs also change. Inevitably they will have different needs in each stage of the research lifecycle.

Table 4.6: Library research needs of UNESWA masters and PhD students as identified by librarians (N=5)

Stages in the research process (Schoombee, 2014)	Master and PhD students' library research needs	Frequency
Prepare (Ideas and planning)	Assistance with selecting research topics or research area	2
	Background reading materials and academic writing books	5
	Research commons for quiet studying and working	3
	Identifying funding	2
	Information literacy classes	5
	Expert advice to provide subject specific library support	4
	Research support librarian	2
Gather	Access to timely, relevant, and subject specific literature	5
	Support with ethics clearance (access to departmental guidelines on drafting ethics application)	3
	Academic writing workshops and training	2
	Access to best practices for conducting research	1
	Access to timely, relevant, and subject specific literature	5
Create	An understanding of the rights and responsibilities of a researcher	3
	Awareness and emphasis on originality of academic research	4
	Data analysis tools	5
	Library supported referencing tools	3
	Plagiarism detection software	5
Manage and preserve	Access to existing datasets for research	2
	Access to IR to store research data	3
	Effective management of IR to manage stored data	3
	Support with RDM plan	3
	Publication support and advice on where to publish	5
Share and collaborate	Publishing workshops	2
	Awareness of available publishing platforms	3
Measure	Research impact assessment tools	4

4.5.2 Library research needs of UNESWA masters and PhD students as identified by UNESWA academics

The interviewed academics responded affirmatively to this question, explaining that masters and PhD students will have library research needs from the start to completion of their research projects. Academics had varying views of anticipated library research needs of masters and PhD students, however they all agreed that these students will need: adequate background reading material, access to a wide range of e-journals and databases, literature, and academic (scientific) writing training. Table 4.7 captures themes that were extracted from responses detailed in relation to Schoombée's (2014: 7) research lifecycle adapted for library research support.

Table 4.7: Library research needs of UNESWA masters and PhD students as identified by academics (N=10)

Stages in the research process (Schoombee, 2014)	Master and PhD students' library research needs	Frequency
Prepare (Ideas and Planning)	Adequate background reading material	10
	Access to a wide range of e-journals and databases	10
	Assistance with identifying funding sources	3
	Formulation of research topics	
	Quiet space such as research commons to provide good working environment with Internet access	8
	Departmental research guidelines and expectations of research students	2
	Remote access to resources	3
Gather	Literature	10
	Statistical tools for data analysis	6
	Guidance and support for ethics clearance	4
	Subject librarian's familiar with language of research and agriculture	5
Create	Referencing tools (e.g. Mendeley, RefWorks, Endnote) for assistance with referencing	8
	Plagiarism tools and trainings on how to use them and comply with copyright	9
	Training on citation tools	8
	Academic (scientific) writing training	10
	Editing research thesis, cleaning data support services	7
	Guidance and guidelines on manipulating data and making sense of it	3
Manage	Training on IR and how to deposit research output	3
	Assistance and guidance on RDM	7
	Documentation on how to write thesis RDM	2
Share and collaborate	Training and advice about publishing	7
	Trainings about rights and responsibilities as a researcher and author	4
	Guidance and guidelines on selecting journals	5
Measure	Access to citation tools	3
	Training on the use of citation tools	3

4.5.3 Library research needs of UNESWA masters and PhD students as identified by masters and PhD students

A three-point Likert scale (yes, no, I am not sure) was used to establish the library research needs of masters and PhD students from these students themselves (see Appendix C). The findings are presented according to the different stages of Schoombee's (2014) research lifecycle adapted for library research support. Tables have been used to display findings according to frequency (*f*), percentage (%), mean (*M*) and standard deviation (*SD*).

Cronbach's Alpha (α) is a valuable coefficient for examining the internal consistency or reliability of a group of items. It measures how well a set of variables or items measures a single "unidimensional latent construct" (Bryman & Bell, 2015: 170). Andrew, Pedersen and McEvoy (2011: 202) explain that Cronbach's Alpha is a correlation between the item responses in a questionnaire, assuming the statistic is directed toward a group of items intended to measure the same construct. A reliability analysis was carried out on the library research needs of masters and PhD students and the extent UNESWA Libraries meets the library research needs of masters and PhD students. In this case, $\alpha = 0.710$, which shows high internal consistency. The results of Cronbach's Alpha are usually between 0 and 1 with an acceptable reliability score being 0.7 and higher (Tavakol & Dennick, 2011: 53).

The mean (*M*) is a measure of central tendency, as it provides an arithmetic average of a group of scores, whereas the standard deviation (*SD*) is a measure of dispersion around the mean that is often used to measure variability (Babbie, 2016: 533). Standard deviation shows how much variation there is from the average (mean). Albers (2017: 39) explains that a low standard deviation indicates that the data points tend to be close to the mean, whereas a high *SD* indicates that the data are spread out over a large range of values, hence the *SD* can be used to define outliers in the data. Tables have been used to display findings in frequency (*f*), percentage (%), mean (*M*) and standard deviation (*SD*).

4.5.3.1 Library research needs of masters and PhD students at ‘Prepare (Ideas and planning)’ stage

The majority of respondents indicated that they need library support for background reading (99%), M=1 and SD=0.065; suitable workspaces (97%); relevant skills training (87%); planning the project (84%); as well as securing funding (70%). However, the majority of students indicated they did not need any library support with identifying a supervisor (96%) and developing a budget (89%). Table 4.8 captures the findings of masters and PhD students’ library research needs at the ‘prepare’ stage of the research lifecycle as adapted for library research support by Schoombee (2014).

Table 4.8: UNESWA masters and PhD students’ library research needs at ‘Prepare (Ideas and planning)’ stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Prepare (Ideas and planning)								
Choosing a topic	65	27%	167	70%	6	3%	1.74	0.527
Formulating research question	83	35%	152	64%	3	1%	1.68	0.510
Developing a budget	20	8%	211	89%	7	3%	1.93	0.378
Securing funding	166	70%	61	26%	11	4%	1.34	0.555
Identifying a supervisor	5	2%	229	96%	4	2%	1.99	0.205
Background reading	237	99%	1	1%	0	0	1	0.065
Suitable workspaces	231	97%	7	3%	0	0	1.03	0.169
Planning the project	199	84%	32	13%	7	3%	1.19	0.464
Relevant skills training	208	87%	21	9%	9	4%	1.17	0.477

4.5.3.2 Library research needs of masters and PhD students at 'Gather' stage

Table 4.9 highlights that the majority of respondents need library research support the most in this stage. Most of the respondents indicated that they need library research support for literature reviews (97%), research methods and design (89%), research proposal (86%) and, ethics approval (94%). Fifty-three percent (53%) of the respondents, with highest M=1.64 and SD=0.570, said they do not need support with collecting data.

Table 4.9: UNESWA masters and PhD Students' library research needs at 'Gather' stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Gather								
Literature review	232	97%	5	2%	1	1%	1.01	0.112
Research methods and design	213	89%	24	10%	1	1%	1.12	0.348
Research proposal	206	86%	28	12%	4	2%	1.15	0.410
Collecting data	103	43%	125	53%	10	4%	1.64	0.570
Ethics approval	224	94%	10	4%	4	2%	1.08	0.322

4.5.3.3 Library research needs of masters and PhD students at 'Create' stage

The findings captured in Table 4.10 reflect that for this stage of the research lifecycle, more respondents selected 'yes' (they do need library support) for each of the services listed. It is also useful to observe that the majority (97%) of students, with M=1.05 and SD=0.293, indicated that they need support with complying with copyright and avoiding plagiarism.

Table 4.10: UNESWA masters and PhD students' library research needs at 'Create' stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Create								
Proofreading	167	70%	67	28%	4	2%	1.33	0.505
Complying with copyright	230	97%	5	2%	3	1%	1.05	0.293
Avoiding plagiarism	232	97%	5	2%	1	1%	1.03	0.193
Referencing and bibliography	224	94%	10	4%	4	2%	1.08	0.346
Writing and editing	161	67%	66	28%	11	5%	1.41	0.601
Interpreting results	183	77%	52	22%	3	1%	1.25	0.463

4.5.3.4 Library research needs of masters and PhD students at 'Manage and preserve' stage

A significant number of students indicated that they are in need (Yes) of all the listed research support services in this stage. Interestingly, all the library research needs had a frequency of 90% and above. As shown in Table 4.11, only a few students indicated they do not have library research needs in this stage, and an even smaller number of respondents indicated they were 'not sure' of library research needs in this stage. Sharing datasets (91%), had the highest M=1.12 and SD=0.428 scores.

Table 4.3: UNESWA masters and PhD students' library research needs at 'Manage and preserve' stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Manage and preserve								
Backing up research	229	96%	4	2%	5	2%	1.05	0.300
Making datasets discoverable	214	90%	19	8%	5	2%	1.12	0.398
Archiving output	224	94%	11	5%	3	1%	1.07	0.303
Managing and archiving datasets for future use	225	94%	6	3%	7	3%	1.09	0.390
Sharing datasets	216	91%	14	6%	8	3%	1.12	0.428

4.5.3.5 Library research needs of masters and PhD students at 'Share and collaborate' stage

Masters and PhD students indicated that they need research visibility, 71%, with M=1.39 and SD=0.683, whilst 48% of students indicated that they need support with building a research network. Unexpectedly, 60%, having the highest M=1.93 and SD=0.636, of the respondents specified that they do not need support with securing publication funding and 48% of the respondents indicated that they need support with building a research network. Table 4.12 captures the findings of masters and PhD students' library research needs at the 'share and collaborate' stage of the research lifecycle as adapted for library research support by Schoombee (2014: 7).

Table 4.4: UNESWA masters and PhD students' library research needs at 'Share and collaborate' stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Share and collaborate								
Research visibility	170	71%	44	19%	24	10%	1.39	0.683
Building a research network	114	48%	85	36%	39	16%	1.69	0.755
Securing publication funding	58	24%	143	60%	37	16%	1.93	0.636

4.5.3.6 Library research needs of masters and PhD students at 'Measure' stage

More than fifty percent (60%, 59% and 55%) of masters and PhD students indicated they do not have library research needs in this stage. A relatively small number of respondents 37% with M=2.21 and SD=0.608 indicated that they need metrics to demonstrate research impact. Thirty percent (30%) of the respondents felt they were not sure if they need any of the services presented in this stage. There is a possibility that they responded this way because many students at masters level in particular have probably not yet published, and hence the need to create awareness among these students about metrics. Findings are captured in Table 4.13.

Table 4.5: UNESWA masters and PhD students' library research needs at 'Measure' stage (N=238)

Library research support needs Support/resources for:	Yes		No		I am not sure		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Measure								
Metrics to support funding applications	24	10%	143	60%	71	30%	2.19	0.633
Metrics to demonstrate research impact	27	11%	139	59%	72	30%	2.24	0.591
Metrics to decide where to publish	37	15%	130	55%	71	30%	2.21	0.608

4.6 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students

A third critical question guiding this study was to what extent are the library research needs of masters and PhD students being met by UNESWA Libraries. This section presents the findings obtained through interviews with librarians and academics at UNESWA (see Appendices A & B) as well as questionnaire (see Appendix C) responses of masters and PhD students.

4.6.1 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA librarians

Interviewed librarians stated that UNESWA Libraries is able to support masters and PhD students from the start to the completion of their research process through the various services and resources it provides. Despite the librarians not mentioning any library research support services in the last two stages ('Share and collaborate' and, 'Measure') of the research lifecycle as adapted for library research support by Schoombee (2014: 7), the library is able to provide the much needed research support services. Librarians were confident in the services they provide as one librarian explained that "UNESWA Libraries tries to meet the needs of researchers despite financial constraints as we are able to provide utmost assistance to address any request and needs presented by these students". In addition, another librarian indicated that "we meet students library research needs to a larger extent, however there is still room for improvement as I believe the library can do more with regards to supporting these students". Moreover, librarians interviewed were confident and satisfied with the library research support services provided to masters and PhD students.

4.6.2 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA academics

Academics at UNESWA had differing perceptions about the extent of UNESWA Libraries in meeting the library research needs of masters and PhD students. Despite their differing

views, academics all agreed that although the library does meet some of the students' library research needs, there was still room for improvement (a point also made by the librarians) and they believe that with time the library would incorporate more innovative and timely services to meet and accommodate library needs of researchers. One of the academics emphasised that UNESWA Libraries "fairly meets the research needs of masters and PhD students as there is room for improvement, for example the library can provide more extensive range of crop science databases and journals". Another academic detailed that

"in terms of what I have discovered, electronically the library is well equipped because as a student or staff you can actually have access to almost [all] the very very good journals in your field, but I believe something is lacking; there are certain quality books relating to my own field that are very good that I have to provide for some of my students because they are not available in the library".

In another interview, an academic emphasised that the library meets the needs "fairly adequate as they have online resources, however they are hiccups such as restricted access as resources cannot be accessed remotely and at times there are network problems which make it difficult to access these resources". Similarly, another academic opined that "if UNESWA Libraries can get adequate funding I am pretty confident that they can match any world class university library services because their professionalism is good, so it is just a funding issue; moreover on a scale of ten, I would rate them seven and a half".

4.6.3 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students as expressed by UNESWA masters and PhD students

Masters and PhD students were asked, using a Likert scale to rate the extent to which UNESWA Libraries are meeting their library research needs. The scale had four categories: not at all, to a minimal extent, to a moderate extent and, lastly, to a great extent. The findings are presented according to the different stages of the research lifecycle as adapted for library research support by Schoombbee (2014: 7). Tables have been used to display findings according to frequency (*f*), percentage (%), mean (*M*) and standard deviation (*SD*).

4.6.3.1 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Prepare (Ideas and planning)' stage

Table 4.14 shows that masters and PhD students exhibit a low satisfaction with library research services at this stage. Notably, all surveyed students (100%) indicated that the library does not (Not at all) meet their needs for developing a budget (M=1.03 and SD=0.274) and securing funding (M=1.04 and SD=0.302), a signal that the library does not provide these services. Most of the respondents felt that the library does not meet their needs with regards to choosing a topic (91%), formulating research questions (96%), and identifying a supervisor (94%). More than half (57%) of the respondents felt that the library provides background reading to a moderate extent.

Table 4.6: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Prepare (Ideas and planning)' stage (N=238)

Library research needs Support/ resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Prepare (Ideas and Planning)										
Choosing a topic	218	91%	18	8%	2	1%	0	0	1.10	0.329
Formulating research questions	228	96%	7	3%	3	1%	0	0	1.06	0.284
Developing a budget	238	100%	0	0	0	0	0	0	1.03	0.274
Securing funding	238	100%	7	3%	2	1%	0	0	1.04	0.302
Identifying a supervisor	223	94%	8	3%	7	3%	0	0	1.05	0.279
Background reading	9	4%	89	37%	136	57%	4	2%	2.62	0.559
Suitable workspace	18	8%	35	15%	112	47%	73	30%	3.06	0.852
Planning your research project	128	54%	92	38%	16	7%	2	1%	1.51	0.648
Relevant skills training	69	29%	159	66%	9	4%	1	1%	1.76	0.554

4.6.3.2 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Gather' stage

The findings for this stage as captured in Table 4.15 show clear differences in the Likert scale responses. Most of the students (97%), with $M=1.03$ and $SD=0.193$, are of the view that the library does not (Not all) offer support with data collection. It is useful to note that 69% of the students said the library supports their literature review needs to a moderate extent. Also noteworthy is that a fair percentage of students (66% and 63%, respectively) indicated that the library to a minimal extent supports their research methods and design needs, and also their research proposal needs.

Table 4.7: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students at 'Gather' stage (N=238)

Library research needs Support/resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Gather										
Literature review	10	4%	52	22%	165	69%	11	5	2.79	0.555
Research methods and design	50	21%	158	66%	29	12%	1	1	1.97	0.565
Research proposal	73	30%	150	63%	14	6%	1	1	1.79	0.564
Collecting data	233	97%	4	2%	1	1%	0	0	1.03	0.193
Ethics approval	82	34%	122	51%	33	14%	1	1	1.80	0.699

4.6.3.3 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Create' stage

The findings for this stage, as captured in Table 4.16, reveal that most of the students surveyed indicated that the library does not (Not at all) provide support for proof reading (96%), writing and editing (95%) as well as interpreting results (99%). Interestingly, respondents answered affirmatively with regards to other services in this stage. More than three-quarters (77%) of respondents indicated that the library provides at least minimal support for avoiding plagiarism. Complying with copyright had the highest $M=2.17$ and

SD=0.548, showing that 72% of students surveyed indicated that the library provides support to a minimal extent for this library research need.

Table 4.8: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students at 'Create' stage (N=238)

Library research needs Support/resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%		
Create	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	<i>f</i>	%	M	SD
Proofreading	229	96%	9	4%	0	0	0	0	1	0.065
Complying with copyright	16	7%	171	72%	49	20%	2	1%	2.17	0.548
Avoiding plagiarism	36	15%	183	77%	18	7%	1	1%	1.97	0.485
Referencing and bibliography	81	34%	140	59%	17	7%	0	0	1.76	0.581
Writing and editing	225	95%	13	5%	0	0	0	0	1.02	0.144
Interpreting results	235	99%	3	1%	0	0	0	0	1	0.065

4.6.3.4 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at 'Manage and preserve' stage

The findings captured in Table 4.17 show that a majority of respondents indicated that the library does not (Not at all) meet their research needs for this stage in the research lifecycle. There is a fairly strong agreement amongst the respondents (84%, 77% and 75%) that the library does not (Not at all) meet the needs they have for managing and archiving datasets for future use, making datasets discoverable and sharing datasets, respectively. However, 75% (M=1.88 and SD=0.498) and 62% of the respondents indicated that, to a minimal extent the library provides backing-up research and archiving output support, respectively.

Table 4.9: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at ‘Manage and preserve’ stage (N=238)

Library research needs Support/ resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Manage and preserve										
Backing up research	45	19%	179	75%	13	5%	1	1%	1.88	0.498
Making datasets discoverable	183	77%	52	22%	3	1%	0	0	1.25	0.472
Archiving output	69	29%	147	62%	16	6%	6	3%	1.86	0.644
Managing and archiving datasets for future use	199	84%	37	15%	2	1%	0	0	1.15	0.389
Sharing datasets	180	75%	54	23%	4	2%	0	0	1.27	0.500

4.6.3.5 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at ‘Share and collaborate’ stage

All respondents (100%) indicated that the library does not (Not at all) meet their library research needs for securing publication funding, whilst a majority of respondents (97%) M=1.03 and SD=0.157, said that the library does not (Not at all) meets their needs for building a research network. Research visibility with the highest M=1.61 and SD=0.611, indicated by 48% students, shows that UNESWA Libraries meets this library research need to at least a minimal extent. At the same time almost half of the respondents (46%) felt the library does not (Not at all), meet the need of research visibility, despite a small number (5%) selecting to a moderate extent and to a great extent (1%). These findings are captured in Table 4.18.

Table 4.10: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at ‘Share and collaborate’ stage (N=238)

Library research needs Support/ resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Share and collaborate										
Research visibility	111	46	114	48	12	5	1	1	1.61	0.611
Building a research network	232	97	6	3	0	0	0	0	1.03	0.157
Securing publication funding	238	100	0	0	0	0	0	0	1.03	0.274

4.6.3.6 Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at ‘Measure’ stage

Of note is that all respondents (100%) revealed that the library does not (Not at all) meet the library research needs they have at this stage. This could be due to the fact that the library currently does not provide any of the listed services, and hence the nil responses captured in Table 4.19.

Table 4.119: Extent of UNESWA Libraries in meeting the library research needs of masters and PhD students at ‘Measure’ stage (N=238)

Library research needs Support/ resources for:	Not at all		To a minimal extent		To a moderate extent		To a great extent		Mean	Standard Deviation
	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	<i>f</i>	(%)	M	SD
Measure										
Using metrics to support funding application	238	100	0	0	0	0	0	0	1.03	0.274
Using metrics to demonstrate impact	238	100	0	0	0	0	0	0	1.04	0.302
Using metrics to decide where to publish	238	100	0	0	0	0	0	0	1.04	0.302

In summary, interviewed librarians expressed their satisfaction with the extent to which UNESWA Libraries were meeting the library research needs of masters and PhD students but also acknowledged room for improvement. Similarly, academics interviewed suggested that UNESWA Libraries to a large extent meets the library research needs of masters and PhD students, however they too found that there was room for improvement in this regard. Masters and PhD students had varied views on the extent of UNESWA Libraries meeting their library research needs with 'Not at all' and 'To a minimal extent' dominating most responses, and in new areas (for example, the 'Measure' stage) students' responses intimated that there are research support services that are currently not offered by UNESWA Libraries.

4.7 Proposed library research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students

The fourth and final critical question guiding the study attempted to ascertain research support services needed to accommodate any deficiencies in library research support for UNESWA masters and PhD students. This section presents the findings resulting from interviews with librarians and academics at UNESWA (see Appendices A and B) as well as questionnaire (see Appendix C) responses of masters and PhD students.

4.7.1 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as identified by UNESWA Librarians

Interviewed librarians were asked to suggest additional library research support for more complete research support of UNESWA masters and PhD students and to share any future plans UNESWA Libraries might have for masters and PhD students' library research support. Librarians explained that it was difficult to make suggestions for additional research support at present as UNESWA was facing financial constraints. One librarian detailed that "the library has no future plans at present because the library is facing financial issues which makes it difficult to plan when there is nothing to even run the current projects, so it is really difficult". On a positive note, two of the five interviewed librarians indicated that

there were three proposed plans for the future which include: establishing a research commons¹ that will solely be used by postgraduate students; implementing fully trained research librarians who would provide support with proposal writing, data analysis, citation and reference management training; as well as provide more training sessions as per the needs of masters and PhD students.

4.7.2 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as identified by UNESWA academics

UNESWA academics interviewed were asked, in addition to the current library research support services provided by UNESWA Libraries, what other research support services they would suggest for more complete library research support for UNESWA masters and PhD students. Academics provided a comprehensive list of additional services from which six themes emerged as illustrated in Figure 4.4.

¹ A research commons is a library space, exclusively for postgraduate students and staff members comprising of: quiet study and writing areas; small group discussion and seminar rooms; document centre; and permanent specialists who attend to and cater for researchers' needs (Daniels, Darch & De Jager, 2010: 122).

Additional library research support services suggested by academics (N=10)

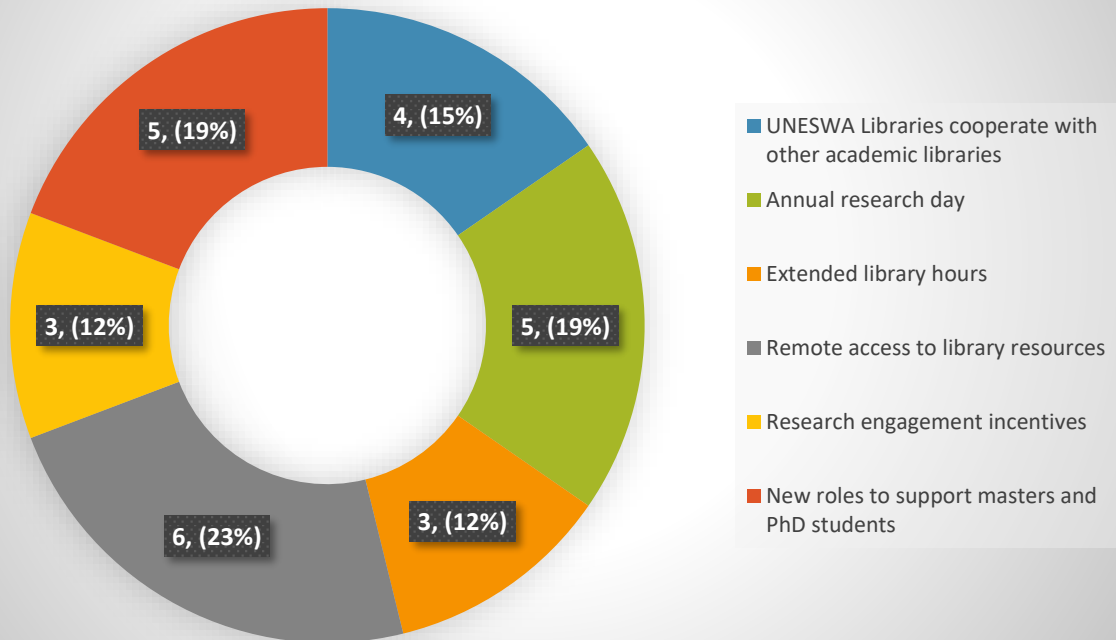


Figure 4.4: Additional research support services for more complete library research support for UNESWA masters and PhD students as suggested by UNESWA academics

Most of the academics (6) interviewed suggested the provision of remote access to library resources. Half of the respondents (5) recommended new roles to support masters and PhD students such as research support librarian. Five (5) out of the 10 academics interviewed also recommended a research day to provide researchers with networking opportunities. Four (4) academics suggested that UNESWA Libraries should cooperate with other academic libraries to source and provide more research materials. Three (3) academics suggested research engagement incentives (e.g. a special weekly/monthly feature on the library website). Three (3) academics proposed extended library hours and the provision of a 24-hour unit for masters and PhD students to work in the library.

4.7.3 Proposed library research support services to accommodate any deficiencies in library research support for UNESWA masters and PhD students as suggested by masters and PhD students

Respondents proposed a wide range of additional services for more complete research support to masters and PhD students, from which five themes were extracted: academic writing; collaboration between UNESWA Libraries and the Institute of Postgraduate Studies to better facilitate research support services; motivating masters and PhD students to finish on time (e.g. monthly researchers' meeting hosted by UNESWA Libraries for researchers to network and share ideas and have research support workshops); the introduction of research librarians; and, the establishment of a research commons. Two hundred and three (203) students responded to this question (Question 7, Appendix C) whilst 35 students did not respond. Figure 4.5 captures the proposed research support services and their frequencies from masters and PhD students. Forty-six (23%) respondents recommended UNESWA Libraries collaborate with the Institute of Postgraduate Studies. Another group of forty-six (23%) students suggested the establishment of a research commons.

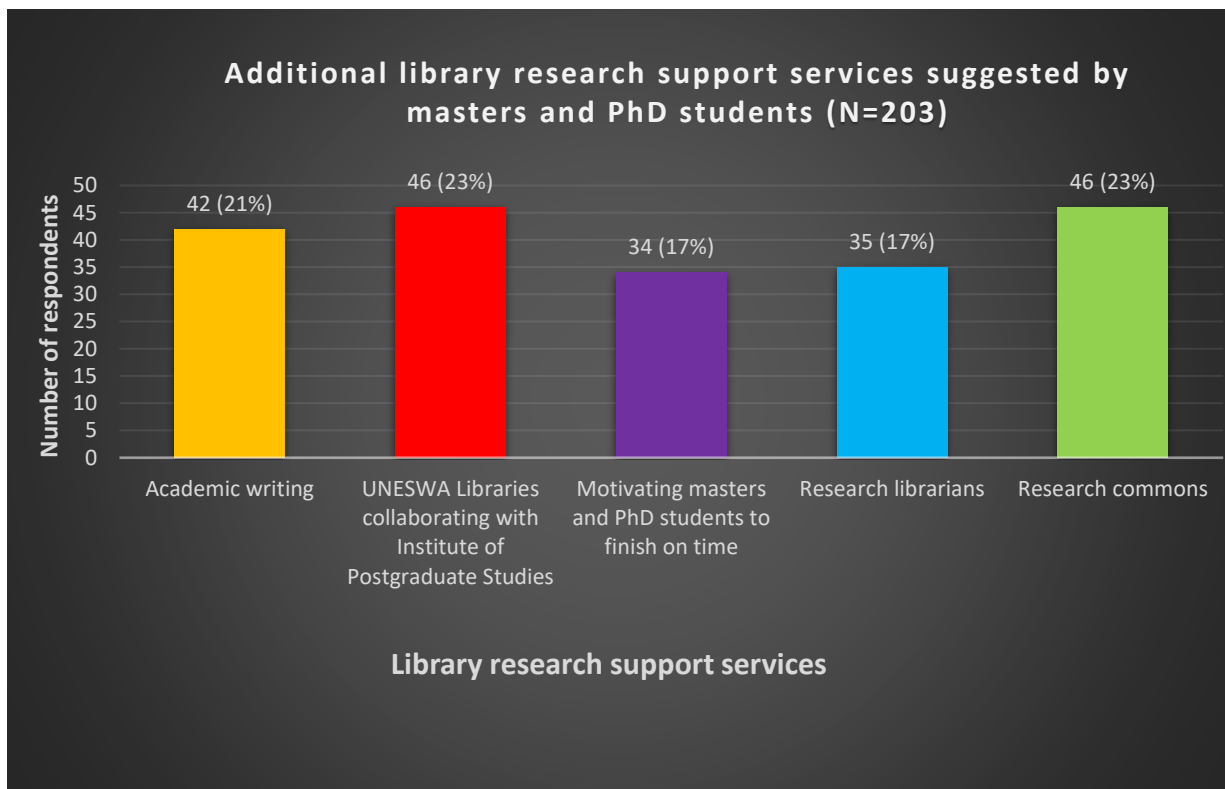


Figure 4.5: Additional research support services for more complete library research for UNESWA masters and PhD students as suggested by masters and PhD students

To summarise, the proposed/additional library research support services, suggested by librarians, academics and masters and PhD students, entail services that are not currently provided by UNESWA Libraries, but would contribute to more complete research support to UNESWA masters and PhD students.

4.8 General comments

The last question in all three data gathering instruments (see Appendices A, B and C) asked respondents if they had any additional comments to make regarding library research support for UNESWA masters and PhD students. Most of the interviewed respondents stated that they did not have any comments to make. However, one librarian stated that “I have none that I can think of, actually the research has been illuminating in a sense that now we know such things do exist somewhere [that is, library research support services throughout the research lifecycle], so it’s now a terminology or phrase that I resonate with”.

One academic commented that “I have no comments as the model used in this research covers all aspects of the research process”.

The majority of masters and PhD students did not have any additional comments to make, though some students indicated that UNESWA Libraries was very useful for their research. Some students brought forward a few suggestions for better research support: upgrading some of the libraries’ book collections, staff being more friendly, and added workspaces strictly for masters and PhD students. One student commented that “UNESWA Libraries is highly organised as it captures what I need as a student, [but] because of funding issues we experience limited resources”.

4.9 Chapter summary

This chapter presented the study’s findings emanating from the analysis of data collected from librarians, academics, and masters and PhD students at UNESWA. The study yielded sufficient return rates (100% librarians, 67% academics, and 51.5% masters and PhD students) which were adequate representations of the different targeted sub-populations. Findings from the two qualitative data sources (interviews with UNESWA librarians and academics) and the quantitative data source (questionnaire survey of UNESWA masters and PhD students) were presented in the chapters in response to the four critical questions guiding the study and responding to the study’s research objective. The next chapter discusses the main findings of this study in the context of its research objective, critical questions, supporting theory and reviewed literature. On the basis of this discussion, conclusions would be drawn and recommendations would be made.

Chapter 5: Discussion of main findings, conclusions and recommendations

5.1 Introduction

The previous chapter presented findings from interviews with purposively sampled librarians and academics, and questionnaire survey responses from a census of masters and PhD students at UNESWA. This chapter discusses the main findings of this study in relation to the objective of the study, critical questions, supporting theory and reviewed literature. On the basis of this discussion, conclusions are drawn, and recommendations are made.

The objective of the study was to ascertain the extent of research support by University of Eswatini (UNESWA) Libraries for masters and PhD students at the University of Eswatini. The four critical questions generated to address this objective were:

- What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini?
- What are the library research needs of masters and PhD students at UNESWA?
- To what extent are these needs being met by UNESWA Libraries?
- If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency?

5.2 Discussion of findings

The main findings of this study are discussed according to the study's critical research questions which were informed by Schoombee's (2014) research lifecycle adapted for library research support.

5.2.1 Research support services for masters and PhD students provided by UNESWA Libraries

UNESWA Libraries research support encompasses a centralised suite of activities in support of masters and PhD students' research. As evident in the study's findings, UNESWA Libraries provides research support in five of the six stages of Schoombee's (2014) research lifecycle

adapted for library research support: Prepare (Ideas and planning), Gather, Create, Manage, Share and collaborate. Interviewed librarians and questionnaire responses from masters and PhD students did not mention any library research support services in the Measure stage, and hence the assumption that UNESWA Libraries does not offer support in this stage. Despite this, a critical analysis of the research support services provided by UNESWA Libraries reveals that UNESWA Libraries provides research support from start to completion of masters and PhD students' research. It is noteworthy that the depth of research support services provided by UNESWA libraries varies in each stage of the research lifecycle. As evident in Tables 4.4 and 4.5 (Chapter 4), UNESWA Libraries provides a wider range of research support services in the Prepare (Ideas and planning) and Gather stages compared to the other stages in the research lifecycle adapted for library research support (Schoombee, 2014: 7).

UNESWA Libraries' research support comprises of: information literacy training; study carrels designated for masters and PhD students; resources for background reading; resources for literature reviews; vast range of research methodology and academic writing books; suitable workspaces; extended borrowing privileges; interlibrary loans; support for research ethics approval; institutional repositories; and, publication workshops. According to the literature (Auckland, 2012; Pasipamire, 2015), UNESWA Libraries provides traditional research support services. This differs somewhat from previous studies which found academic libraries' research support to also include new and expanded suite of services such as: research data management services, new roles to support researchers, scholarly communication and open access, research impact measurement, and research commons (Raju and Schoombee, 2013; Chiware and Becker, 2018; Klain-Gabbay and Shoham, 2018; Jackson, 2018; Onyanacha, 2018; Langley, 2019). Given that globally academic libraries are developing and implementing new services to support their researchers, UNESWA Libraries whose research support for masters and PhD students seems to still be in its infancy, ought to consider keeping up with global trends and finding ways of expanding its research support services. Masters and PhD students also had different perceptions about the services provided by UNESWA Libraries in each stage of the research lifecycle. This could be largely attributed to the fact that some students had not yet started their research projects, and hence they are not aware of the services offered by UNESWA Libraries. At the same

time, this could indicate a need for UNESWA Libraries to market its library research support services to these students. In support of this, Motawah, Sen and Willet (2019: 74) found that oftentimes postgraduate students are not aware of the library research support services available to them.

5.2.2 Library research needs of UNESWA masters and PhD students

Understanding library research needs helps libraries improve and expand the resources and services available to researchers (Phoenix & Henderson, 2016: 574). It was therefore paramount to ascertain the library research needs of masters and PhD students at UNESWA. The findings indicate that UNESWA masters and PhD students have library research needs throughout the research lifecycle (see Tables 4.6 to 4.13, in Chapter 4). In a similar vein, Liu (2017: 16) using the research lifecycle, discovered that postgraduate students at Peking University need library support from the start to the completion of their research. A critical observation of Tables 4.6 and 4.7 reveal that UNESWA masters and PhD students have different library research needs in each stage of Schoombée's (2014: 7) research lifecycle adapted for library research support. Interviewed librarians and academics explained these students' library research needs more generally whilst masters and PhD students provided more clarity about their library research needs in each stage of the research lifecycle.

In the Prepare (Ideas and planning) stage, for example, masters and PhD students at UNESWA indicated that they mostly needed information literacy training, resources for background reading and suitable workspaces the most, whilst in the Gather stage, library research support needs with the highest frequencies were: resources for literature reviews; resources for research methods and design; support for compiling a research proposal; and support for ethics approval. These findings correlate with responses from interviewed librarians and academics (see Tables 4.6 and 4.7) as they explained that masters and PhD students will need library research support mostly when preparing for their research and at the start of their research project (that is, at the Prepare (Ideas and planning) and Gather stages). This is understandable considering that modern-day researchers rely heavily on immediate access to electronic information (Du & Evans, 2011: 105). These findings are supported by previous studies (Iwara, 2015; Ankrah & Atuase, 2018), which found that

postgraduate students need access to different types, levels, and formats of information resources for their research.

Out of the six listed library research needs at the Create stage (see Table 4.10), three of these were rated as highly needed by masters and PhD students namely, with copyright (97%), avoiding plagiarism (97%), referencing and bibliography (94%). Interestingly, similar library research needs were captured to have the highest frequency amongst interviewed librarians, namely: Understanding of the rights and responsibilities of a researcher (3 out of 5 librarians); awareness and emphasis on originality of academic research (4 out of 5 librarians); library supported referencing tools (3 out of 5 librarians); and, plagiarism detection software (5 out of 5 librarians). Library research needs with the highest frequencies amongst interviewed academics were: referencing tools (8 out of 10 academics); plagiarism tools and training on how to use them and, complying with copyright (9 out of 10 academics); and, training on the use of citation tools (8 out of 10 academics). That the findings here from interviews (librarians and academics) and questionnaires (masters and PhD students) correlate, is an indication that UNESWA masters and PhD students indeed have these library research needs. This comes as no surprise given the universal emphasis in postgraduate research of the importance of originality and adhering to copyright regulations. In addition, interviewed librarians and academics indicated that masters and PhD students need, in the Create stage, academic (scientific) writing training, editorial services, and data analysis tools.

UNESWA masters and PhD students need research data management support. As captured in Table 4.11, masters and PhD students at UNESWA indicated (via high frequency distributions of 90% to 96%) that they need library research support with all the services listed in the Manage and preserve stage. Interviewed librarians and academics, through their responses, agreed that masters and PhD students need all relevant support with regards to managing and storing their research data, compiling a research data management (RDM) plan, training on depositing their research output in institutional repositories, access to existing datasets for research, as well as publication support and advice on where to publish. These findings are supported by Chiware and Mathe's (2015: 1) findings that postgraduate students need RDM support services. Furthermore, Jackson

(2018: 603) attests that RDM is a very important element of research since research is data driven.

Researchers publish their work with the hope of finding the widest possible audience in order to maximise their research impact (Dang, 2017: 50). It is therefore no surprise that UNESWA masters and PhD students have such needs. Interviewed librarians explained that masters and PhD students need publishing workshops and awareness of publishing platforms whilst interviewed academics were of the view that these students need training about rights and responsibilities of a researcher and author, and guidance on selecting journals for publishing. These librarians pointed out that UNESWA Libraries currently provides these services which suggests that UNESWA librarians have observed the importance of this library research support service for masters and PhD student research, and have responded to it. Venitha (2015: 3) observed that African universities have a very low research capacity in the form of published peer reviewed articles, including masters and doctoral output, as a result these universities produce less than 1% of global scholarly articles. Thus, this emphasises the need for research visibility for masters and PhD students' research. Although necessary in research, a relatively small percentage of masters and PhD students (48%) indicated that they need library support with building a research network. Furthermore, a significant 60% of masters and PhD students indicated that they do not need to secure publication funding. These views could be attributed to a limited understanding on the part of masters and PhD students of the research and publishing journey owing to the fact that 35% and 47% of respondents were still in their first and second year of study, respectively.

In the last stage, Measure, of the research lifecycle adapted for library research support (Schoombee, 2014: 7), masters and PhD students surveyed had varying views about needing metrics and citation tools support. However, more than half of these respondents indicated that they do not need support in this stage whilst about 30% of respondents were uncertain (not sure) if they have library research support needs in this stage. This is no surprise as masters and PhD students had indicated (see Table 4.5) that they were not aware of these library research support services. Another contributing factor to these findings could be the fact that UNESWA Libraries does not provide research impact assessment tools support (see Section 5.2.1), and as a result it is a foreign concept amongst current UNESWA masters and

PhD students; hence the need to sensitise these students about research metrics. Despite masters and PhD students' responses, interviewed librarians indicated that these students would need research impact assessment tools and interviewed academics stated these students would need access to and training in the use of research impact assessment tools. These views from interviewed librarians and academics are supported by the literature (Bladek, 2014; Drummond & Wartho, 2016; Onyancha, 2018; Gutzman et al., 2018) which affirm the need for research impact assessment and citation tools in research.

In summary, the combined responses from interviewed librarians and academics, and questionnaire survey of UNESWA masters and PhD students provided rich depth and understanding of the library research needs of UNESWA masters and PhD students. Using Schoombee's (2014) research lifecycle adapted for library research support made it possible to unpack and understand the library research needs of UNESWA masters and PhD students in each stage of the research lifecycle.

5.2.3 Extent of UNESWA Libraries meeting the library research needs of masters and PhD students

The study's findings (refer to Section 4.6) indicate that the extent of research support provided by UNESWA Libraries varies greatly with each stage in the research lifecycle adapted for library research support by Schoombee (2014: 7). However, the general impression among the study respondents is that UNESWA Libraries plays a relevant role in support of masters and PhD students' research. Interviewed librarians explained that UNESWA Libraries currently supports masters and PhD students from the start of their research to completion. Although UNESWA Libraries currently does not provide research support at the Measure stage (see Section 5.2.1) and is faced with financial challenges, interviewed librarians were generally confident about the level of library research support provided to UNESWA masters and PhD students. Owing to the fact that UNESWA Libraries' research support is still at its infancy, interviewed librarians pointed out that there is still room for improvement in this regard. Interviewed academics had mixed views about the extent of UNESWA Libraries meeting the library research needs of masters and PhD students. They felt UNESWA Libraries has the ability to provide more research support

services than it currently provides, specifically with background reading resources and programme specific literature (books), and internet access. However, on the whole interviewed academics were generally satisfied with the extent of UNESWA Libraries meeting the library research needs of masters and PhD students.

Masters and PhD students indicated that they had minimal satisfaction with the extent of UNESWA Libraries meeting their library research needs. This contrasts with the overall views of interviewed librarians and academics who expressed that despite room for improvement, overall, they were generally satisfied with the extent of research support provided by UNESWA Libraries. A critical observation of questionnaire respondents' study year (mostly first and second year) reveals that the majority of the respondents might not yet be in the depths of their research journeys and therefore possibly have not yet been exposed to some of the library research support services, and hence their generally low ratings of services offered – see Tables 4.14 to 4.19.

These findings build on existing evidence that academic libraries (UNESWA Libraries included) through the services they provide are generally able to meet the library research needs of postgraduate students. Additionally, these findings are similar to that in previous research which found that respondents were generally satisfied with their libraries' research support (Rasul & Sing, 2010; Tewell et al., 2017; Liu, 2017; Kiviluoto & Sinisalo, 2019).

5.2.4 Proposed library research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students

Research support encompasses the provision of services in all the stages of the research process (Borrego & Anglada, 2018: 1). Given that UNESWA has only recently (2012) introduced postgraduate programmes, coupled with UNESWA Libraries' research support still being at its infancy, there were bound to be deficiencies in the library research support for UNESWA masters and PhD students. Hence this study's findings suggest that there is a need for more library research support services at UNESWA Libraries.

Librarians interviewed revealed that UNESWA Libraries has three additional services for the future which include establishing a research commons strictly for postgraduate students;

implementing fully trained research librarians to provide much needed research support services to masters and PhD students; and, offer more training and workshops as per the needs of masters and PhD students. The combined responses from interviewed academics yielded six additional research support services for more complete library research support for UNESWA masters and PhD students, namely: annual research day; extension of library hours; remote access to library resources; research engagement incentives (e.g. special weekly/monthly feature on the library website); UNESWA Libraries cooperating with other academic libraries to source and provide more research materials; and, librarians to assume new roles and provide support to masters and PhD students. The proposed library research support services reflect current shortages in UNESWA Libraries research support services. It was surprising that none of these respondents suggested RDM services (such as research data management plans; securing, backing-up and storage of research data) despite both respondent categories indicating that masters and PhD students need RDM support (see Section 5.2.2).

UNESWA Masters and PhD students suggested (see Figure 4.5) five additional research support services for more complete research support from UNESWA Libraries: academic writing support; UNESWA Libraries collaborating with the Institute of Postgraduate Studies; motivating masters and PhD students to finish their research on time (e.g. monthly researchers' meeting hosted by UNESWA Libraries for researchers to network and share ideas, and hold research support workshops); research librarians; and, research commons. Requests for these services are not surprising in a context of a significant majority (65% and 87% - see Figures 4.1 and 4.2) of UNESWA masters and PhD students, respectively, being part-time students and possibly holding full-time employment; and hence the need for these support services.

5.3 Conclusions

This study adopted Schoombee's (2014: 7) research lifecycle as supporting theory guiding this research, which proved to be very useful in addressing the research objective and study's critical questions. Other studies too (Vaughan et al., 2013; Pasipamire, 2015; Gessner et al., 2017) found that the research lifecycle can be used as a framework to

determine what needs to be done in the library and the type of services to be provided at different stages of the research process. Research support still remains an integral part of academic libraries as evident in the role UNESWA Libraries plays to support masters and PhD students' research at UNESWA. Based on the discussion of main findings in Section 5.2, the study draws the following conclusions relating to the four critical questions generated to address the study's research objective of ascertaining the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini:

- Research support at UNESWA Libraries is categorised as primarily traditional and still in its infancy. Despite this, the library provides a wide range of research support services from the start to completion of masters and PhD students' research. UNESWA Libraries' research support services mainly comprise of: information literacy training; study carrels designated for masters and PhD students; resources for background reading; resources for literature reviews; vast range of research methodology and academic writing books; suitable workspaces; extended borrowing privileges; interlibrary loans; support for research ethics approval; institutional repositories; and, publication workshops.
- UNESWA masters and PhD students encounter different library research needs throughout the research lifecycle. They seem to be mostly in need of: information resources for background reading; suitable workspaces; relevant skills training; information resources for literature reviews; information resources for research methods and design; support with research ethics approval; support with complying with copyright; help with avoiding plagiarism; referencing and bibliography support; support with backing up research work; support with making datasets discoverable; archiving output support; support with managing and archiving datasets for future use; assistance with sharing datasets; research visibility; and, research impact assessment tools.
- While both librarians and academics at UNESWA seem to be generally satisfied with the extent to which UNESWA Libraries is meeting the library research needs of masters and PhD students, both groups also acknowledge that there is room for

improvement for more complete library research support. UNESWA masters and PhD students, on the other hand, seem to be of the view that UNESWA Libraries meets their library research needs to a minimal extent. The latter view and its departure from that of the librarians and academics, it would seem, is to some extent at least influenced by lack of exposure to research support services provided by UNESWA Libraries.

- Despite the various library research support services provided by UNESWA Libraries for masters and PhD students, this study has identified that there is room for an expanded suite of research support services to more fully meet UNESWA's masters and PhD students' library research needs. To address this gap the following proposed library research support services emerged from the study: annual research day; provide research engagement incentives (e.g. a special weekly/ monthly feature on the library website); academic writing support services; extension of library hours; remote access to library resources; UNESWA Libraries collaborating with the Institute of Postgraduate Studies; UNESWA Libraries cooperating with other academic libraries to source and provide more research materials; motivating masters and PhD students to finish on time (e.g. monthly researchers' meeting hosted by UNESWA Libraries for researchers to network and share ideas and, hold research support workshops); and, librarians to assume and provide new roles to support masters and PhD students such as that of research librarian.

5.4 Recommendations

Based on the discussion and conclusions drawn in this chapter, this study makes the following recommendations:

- **Incorporating additional research support services**
UNESWA Libraries should make use of available technologies and incorporate library research support services that cater for digital age researchers' needs, such as:
 - Provide research data management (RDM) services, including training for masters and PhD students on how to prepare an RDM plan;

- Incorporate research impact assessment tools into UNESWA Libraries research support services and provide training to masters and PhD students on their use;
 - Provide remote (off-campus) access to its online resources;
 - Provide plagiarism-check tools and referencing tools, and training on their use;
 - Provide support for complying with copyright; and,
 - Form partnerships with UNESWA's Institute of Postgraduate Studies to proactively ascertain the research needs of masters and PhD students and areas in which UNESWA Libraries may provide support.
- **Creating awareness of UNESWA Libraries' research support services**
UNESWA Libraries should develop and implement an ongoing library research support services awareness programme in collaboration with the Institute of Postgraduate Studies, specifically targeted to inform and market these services to masters and PhD students.
 - **Research workshops**
UNESWA Libraries could develop and implement, in partnership with stakeholders such as writing centres and the Institute for Postgraduate studies, a programme of workshops that may be offered per semester to better equip masters and PhD students with academic writing and research skills training. This may also be used as a platform to motivate and encourage researchers to finish their research on time by providing incentives and making them understand the value of their research and why they ought to finish on time.
 - **New roles to support researchers**
With the increasing need for library research support, UNESWA Libraries should consider the establishment of posts such as that of a research librarian dedicated to research support in the library. The research librarian could also partner with other relevant departments across UNESWA and thus facilitate UNESWA Libraries

becoming a research partner or collaborator in the research process. UNESWA Libraries could also consider the establishment of a post for a research data management librarian dedicated to providing support to researchers throughout the research data lifecycle such as providing training and guidance on RDM practices, including research data management plans and secure back-up and storage of research data.

- **Further study**

Further study needs to be undertaken to explore how UNESWA Libraries can implement research support services specifically targeted to the needs of masters and PhD students at UNESWA. Furthermore, additional studies can also look at ways in which UNESWA Libraries can maximise its research support services to researchers in general throughout the research lifecycle.

5.5 Chapter summary and general conclusion and evaluation

This chapter discussed the main findings of the study in relation to the objective of the study, critical questions, supporting theory (Schoombee's, 2014: 7, research lifecycle adapted for library research support) and reviewed literature. Based on this discussion, conclusions were drawn and recommendations were made.

This study adopted a convergent parallel mixed methods approach within a pragmatism paradigm and a case study design that made it possible to adopt different forms of data collection (qualitative and quantitative) and analyses to best understand the research problem, and address the study's critical questions which were generated to address the objective of the study. The researcher is satisfied that the adopted data collection methods gathered the requisite data for the study and that this together with theoretical support from Schoombee's (2014: 7) research lifecycle adapted for library research support, ensured that each of the four critical questions addressing the research problem, was adequately responded to in the context of literature reviewed for the study. In short, the study's main objective of ascertaining the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini, has been met.

In as much as library research support remains an integral part of academic libraries, UNESWA Libraries' case study has shown how crucial it is for academic libraries to align library research support services to the needs of researchers. This signifies that academic libraries must re-align themselves and expand their services in order to best support researchers in this digital age. In light of this, the value of this study for practice lies in its possible contribution to UNESWA Libraries for enhancement of research support services to masters and PhD students, as well as to other similar academic libraries, in Africa and even beyond, that are growing services to masters and PhD students. The study's contribution to theory and knowledge in general is that it adds to the body of literature in the area of academic library research support to masters and PhD students specifically, as well as to researchers in general. The latter contribution is timeous, especially in the African context, as the role of universities and their research agendas become increasingly critical in responding to societal challenges.

References

- Adeyemi, B.M. & Oluwabiya, M. 2013. Scholarly use of information for research by postgraduate students: the role of Kenneth Dike Library (KDL). *International Journal of Library and Information Science*. 5(8): 247-255. DOI: 10.5897/IJLIS2013.0366.
- Albers, M.J. 2017. *Introduction to quantitative data analysis in the behavioral and social sciences*. New Jersey, USA: John Wiley & Sons.
- Allan, B. 2010. *Supporting research students*. London: Facet Publishing.
- Anderson, R. 2011. The crisis in research librarianship. *The Journal of Academic Librarianship*. 37(4): 289-290. DOI:10.1016/j. acalib.2011.04.001.
- Andrew, D.P., Pedersen, P.M. & McEvoy, C.D. 2011. *Research methods in sport management*. Champaign, Illinois: Human Kinetics.
- Ankrah, E. & Atuase, D. 2018. The use of electronic resources postgraduate students of the University of Cape Coast. *Library Philosophy and Practice (e-journal)*. 1632: 1-37. Available: <https://digitalcommons.unl.edu/libphilprac/1632> [2019, April 20].
- Atkinson, J. 2016. Academic libraries and research support: an overview. In *Quarterly and the academic library: reviewing, assessing and enhancing service provision*. J. Atkinson, Ed. Oxford: Chandos Publishing. 135-141. DOI: <https://doi.org/10.1016/B978-0-12-802105-7.00013-0>.
- Auckland, M. 2012. Re-skilling for research: an investigation into the roles and skills of subject and liaison librarians required to effectively support the evolving information needs of researchers. London: RLUK Research Libraries. Available: <http://www.rluk.ac.uk/files/RLUK%20Re-skilling.pdf> [2019, January 31].
- Babbie, E. 2016. *The practice of social research*. 14th ed. Boston, USA: Cengage Learning.
- Babbie, E. & Mouton, J. 2014. *The practice of social research*. Cape Town, South Africa: Oxford University Press Southern Africa.

Beard, C. & Bawden, D. 2012. University libraries and postgraduate students: physical and virtual spaces. *New Library World*. 113(9/10): 439-447.

DOI: <https://doi.org/10.1108/03074801211273911>.

Bladek, M. 2014. Bibliometrics services and the academic library: meeting the emerging needs of the campus community. *College & Undergraduate Libraries*. 21(3-4): 330-344.

DOI: 10.1080/10691316.2014.929066.

Bless, C., Higson-Smith, C. & Sithole, S.L. 2013. *Fundamentals of social research methods: an African perspective*. 5th ed. Claremont, South Africa: Juta.

Borrego, A. & Anglada, L. 2018. Research support services in Spanish academic libraries: an analysis of their strategic plans and of an opinion survey administered to their directors.

Publications. 6(48): 1-10. DOI: 10.3390/publications6040048.

Brewerton, A. 2012. Re-skilling for research: investigating the needs of researchers and how library staff can best support them. *New Review of Academic Librarianship*. 18(1): 96-110.

DOI: 10.1080/13614533.2012.665718.

Brophy, P. 2000. *The academic library*. London: Library Association Publishing.

Brown, A., Wolski, M. & Richardson, J. 2015. Developing new skills for research support. *The Australian Library Journal*. 64(3): 224-234. DOI: 10.1080/00049670.2015.1041215.

Brown, S., Alvey, E., Danilova, E., Morgan, H. & Thomas, A. 2018. Evolution of research support services at an academic library: specialist knowledge linked by core infrastructure.

New Review of Academic Librarianship. 24(3/4): 339-350. DOI:

10.1080/13614533.2018.1473259.

Bryman, A. & Bell, E. 2015. *Business research methods*. 4th ed. Oxford, UK: Oxford University Press.

Bussell, H., Hagman, J. & Guder, C.S. 2017. Research needs and learning format preferences of graduate students at a large public university: an exploratory study. *College & Research Libraries*. 78(7): 978-998. DOI: 10.5860/crl.78.7.978.

Chiparausha, B. & Chigwada, P. 2019. Promoting library services in a digital environment in Zimbabwe. In *Handbook of research on advocacy, promotion, and public programming for memory institutions*. P. Ngulube, Ed. Hershey, Pennsylvania: IGI Global. 284-296.

DOI: 10.4018/978-1-5225-7429-3.

Chiwere, E.R.T. & Becker, D.A. 2018. Research data management services in Southern Africa: a readiness survey of academic and research libraries. *African Journal of Library, Archives and Information Science*. 28(1): 1-16. DOI: 10.7553/81-2-1563.

Chiwere, E.R.T. & Mathe, Z. 2015. Academic libraries' role in research data management services: a South African perspective. *South African Journal of Library and Information Science*. 81(2): 1-10. DOI: <https://doi.org/10.7553/81-2-1563>.

Click, A.B. 2018. International graduate students in the United States: research processes and challenges. *Library and Information Science Research*. 40: 153-162.

DOI: 10.1016/j.lisr.2018.05.004.

Cottrel, R.R. & McKenzie, J.F. 2005. *Health promotion and education research methods: using the five-chapter thesis/dissertation model*. Sudbury, Massachusetts: Jones and Bartlett Publishers.

Cox, A.M. 2018. A critical analysis of lifecycle models of the research process and research data management. *Aslib Journal of Information Management*. 70(2): 142-157.

DOI: <https://doi.org/10.1108/AJIM-11-2017-0251>.

Creaser, C. & Spezi, V. 2014. Improving perceptions of value to teaching and research staff: the next challenge for academic libraries. *Journal of Librarianship and Information Science*. 46(3): 191-206. DOI: <https://doi.org/10.1177/0961000613477678>.

Creswell, J. 2014. *Research design: qualitative, quantitative, and mixed methods approaches*. 4th ed. Thousand Oaks, California: Sage.

Creswell, J.W. & Creswell, J.D. 2018. *Research design: qualitative, quantitative and mixed methods approaches*. 5th ed. Thousand Oaks, California: Sage.

Creswell, J.W. & Plano Clark, V.L. 2018. *Designing and conducting mixed methods research*. 3rd ed. Thousand Oaks, California: Sage.

Creswell, J.W. & Plano Clark, V.L. 2011. *Designing and conducting mixed methods research*. 2nd ed. Thousand Oaks, California: Sage.

Dang, T.L. 2017. Enhancing research visibility of academics: the role of academic libraries. *Journal of Information and Knowledge Management*. 8(2): 48-54. DOI: <https://dx.doi.org/10.4314/ijikm.v8i2.4>

Daniels, W., Darch, C. & De Jager, K. 2010. The research commons: a new creature in the library? *Performance Measurement and Metrics*. 11(2): 116-130. DOI: <https://doi.org/10.1108/14678041011064043>.

Delaney, G. & Bates, J. 2018. How can the university library better meet the information needs of research students?: experiences from Ulster University. *New Review of Academic Librarianship*. 24(1): 63-89. DOI: 10.1080/13614533.2017.1384267.

Dempsey, L., Malpas, C. & Lavoie, B. 2014. Collections directions: the evolution of library collections and collecting. *Libraries and the Academy*. 14(3): 393-423. DOI: <https://doi.org/10.1353/pla.2014.0013>.

Deng, S. & Dotson, L. 2015. Redefining scholarly services in a research lifecycle. In *Creating research infrastructure in the 21st-century academic library*. B.L. Eden, Ed. Lanham, Maryland: Rowman and Littlefield. 77-92.

D-maps. 2020. *Map of Eswatini*. available: https://d-maps.com/carte.php?num_car=3593&lang=en (2020, July 10).

Drummond, R. & Wartho, R. 2016. Rims: the research impact measurement services at The University of New South Wales. *Australian Academic & Research Libraries*. 47(4): 270-281. DOI: 10.1080/00048623.2016.1253427.

Du, T.J. & Evans, N. 2011. Academic library services support for research information seeking. *Australian Academic & Research Libraries*. 42(2): 103-120. DOI: 10.1080/00048623.2011.10722217.

Exner, N. 2014. Research information literacy: addressing original researchers' needs. *The Journal of Academic Librarianship*. 40: 460-466. DOI: 10.1016/j.acalib.2014.06.006.

Farkas, M.G. 2012. Research guide technologies. *Tips and Trends*. Available: https://pdxscholar.library.pdx.edu/cgi/viewcontent.cgi?article=1089&context=ulib_fac. [2019, March 12].

Fink, A. 2009. *Conducting research literature reviews: from the internet to paper*. 3rd ed. Los Angeles: Sage.

Fong, B.L., Wang, M., White, K. & Tipton, R. 2016. Assessing and serving the workshop needs of graduate students. *The Journal of Academic Librarianship*. 47: 569-580.

DOI: 10.1016/j.acalib.2016.06.003.

Ganga, E. & Maphalala, M. 2015. The questionnaire approach. In *Educational research: an African approach*. C. Okeke & M. van Wyk, Eds. Cape Town, South Africa: Oxford University Press.

Gessner, C.G., Eldermire, E., Tang, N. & Tancheva, K. 2017. The research lifecycle and the future of research libraries: a library of apps. *Proceedings of the Conference on "At the Helm: Leading Transformation"*. 2-5 March 2017. 533-543. Available: <http://www.ala.org/acrl/sites/ala.org.acrl/files/content/conferences/confsandpreconfs/2017/TheResearchLifecycleandtheFutureofResearchLibraries.pdf>. [2019, March 12].

Gibbons, S. 2012. Techniques to understanding the changing needs of library users. *IFLA Journal*. 39(2): 162-167. DOI: 10.1177/0340035212472846.

Gray, D.E. 2014. *Doing research in the real world*. Thousand Oaks, California: Sage.

Grunzke, R., Hartmann, V., Jejkal, T., Kollai, H., Prabhune, A., Herold, H., Deicke, A., Dressler, C., et al. 2019. The MASi repository service—Comprehensive, metadata-driven and multi-community research data management. *Future Generation Computer Systems*. 94: 879-894. DOI: <https://doi.org/10.1016/j.future.2017.12.023>.

Gutzman, K. E., Bales, M. E., Belter, C. W., Chambers, T., Chan, L., Holmes, K. L., Lu, Y. L., Palmer, L. A., et al. 2018. Research evaluation support services in biomedical libraries. *Journal of the Medical Library Association*. 106(1): 1–14. DOI: 10.5195/jmla.2018.205.

Haddow, G. & Mamtora, J. 2017. Research support in Australian academic libraries: services, resources, and relationships. *New Review of Academic Librarianship*. 23(2-3): 89-109. DOI: 10.1080/13614533.2017.1318765.

Hegarty, N., Hayden, H. & Foley, D. 2009. Supposing is good, but finding out is better: a survey of research postgraduate students at WIT Libraries. *SCONUL Focus*. 46: 91-95. Available: <https://repository.wit.ie/1430/1/PostgradPaper.pdf> [2019, July 18].

Helmstutler, B. 2015. Taking research services to the next level: a case study of implementing a scholarly impact outreach program for faculty and graduate students. *Journal of Library Innovation*. 6(2): 96-104. Available: https://scholarworks.gsu.edu/cgi/viewcontent.cgi?article=1122&context=univ_lib_facpub [2019, May 7].

Henn, M., Weinstein, M. & Foard, N. 2009. *A critical introduction to social research*. 2nd ed. Thousand Oaks, California: Sage.

Hoffman, S. 2016. Introduction: a vision for supporting research. In *Dynamic research support for academic libraries*. S. Hoffman, Ed. London: Facet Publishing. xiii-xxi.

Hollister, C. 2017. Perceptions of scholarly communication among library and information studies students. *Journal of Librarianship and Scholarly Communication*. 5: 1-20. DOI: <https://doi.org/10.7710/2162-3309.2180>.

Islam, A.A.Y. & Sheikh, A. 2019. A study of the determinants of postgraduate student's satisfaction of using online research databases. *Journal of Information Science*. 1-15. DOI: 10.1177/0165551519834714.

Iwara, F.C. 2015. Information needs, library resources and services available to postgraduate students in the institute of African Studies, University of Ibadan, Nigeria. *International Journal of Library and Information Science*. 7(4): 77-85. DOI: 10.5897/IJLIS2014.0450.

Jackson, B. 2018. The changing research data landscape and the experiences of ethics review board chairs: implications for the library practice and partnerships. *The Journal of Academic Librarianship*. 44: 603-612. DOI: doi.org/10.1016/j.acalib.2018.07.001.

Jackson, R. & Stacy-Bates, K.K. 2016. The enduring landscape of online subject research guides. *Reference & User Services Quarterly*. 55(3): 219-229.
DOI: <http://dx.doi.org/10.5860/rusq.55n3.219>.

Jester, A. 2016. Data services for the research lifecycle: the Digital Social Science Center. In *Dynamic research support for academic libraries*. S. Hoffman, Ed. London: Facet Publishing. 69-82.

Johns, E.M., Price, C. & Ungaretti, A.S. 2019. Where in the world is my librarian?: creating cross-campus collaborations to seamlessly connect with students when librarians, students, and faculty are in different locations. *Journal of Library & Information Services in Distance Learning*. 13(1-2): 21-39. DOI: [10.1080/1533290X.2018.1499234](https://doi.org/10.1080/1533290X.2018.1499234).

Jubb, M. 2016. Libraries and the support of university research. In *Quality and the academic library: reviewing, assessing and enhancing service provision*. J. Atkinson, Ed. Oxford: Chandos Publishing. 143-156. DOI: <https://doi.org/10.1016/C2014-0-02106-5>.

Kayongo, J. & Helm, C. 2010. Graduate students and the library: a survey of research practices and library use at the University of Notre Dame. *Reference and User Services Quarterly*. 49(4): 341-349. DOI: <http://dx.doi.org/10.5860/rusq.49n4.341>.

Keller, A. 2015. Research support in Australian university libraries: an outsider view. *Australian Academic & Research Libraries*. 46(2): 73-85.
DOI: [10.1080/00048623.2015.1009528](https://doi.org/10.1080/00048623.2015.1009528).

Kennan, M.A., Corral, S. & Afzal, W. 2014. Making space in practice and education: research support services in academic libraries. *Library Management*. 35(8/9): 666-683.
DOI: <https://doi.org/10.1108/LM-03-2014-0037>.

Kiel, R., O'Neil, F., Gallagher, A. & Mohammad, C. 2015. The library in the research culture of the university: a case study of Victoria University Library. *IFLA Journal*. 4(1): 40-52. DOI: 10.1177/0340035214561583.

Kinsley, K., Besara, R., Scheel, A., Colvin, G., Brady, J.E. & Burel, M. 2015. Graduate conversations: assessing the space needs of graduate students. *College & Research Libraries*. 76(6): 756-770. DOI:10.5860/crl.76.6.756.

Kiviluoto, J. & Sinisalo, R. 2019. Information Specialist facing new challenges. *Nordic Journal of Information Literacy in Higher Education*. 11(1): 16-26. DOI: <https://doi.org/10.15845/noril.v11i1.2610>.

Klain-Gabbay, L. & Shoham, S. 2018. Scholarly communication and the academic library: perceptions and recent developments. In *A complex systems perspective of communication from cells to societies*. A. Berea, Ed. Anamaria, Berea: IntechOpen. DOI: 10.5772/intechopen.82075.

Koltay, T. 2019. Accepted and emerging roles of academic libraries in supporting research 2.0. *The Journal of Academic Librarianship*. 45: 75-80. DOI: 10.1016/j.acalib.2019.01.001.

Kwon, N. 2017. How work positions affect the research activity and information behaviour of laboratory scientists in the research lifecycle: applying activity theory. *Information Research*. 22(1). Available: <https://files.eric.ed.gov/fulltext/EJ1138647.pdf> [2019, April 11].

Langley, A. 2019. How research libraries support the research process: from idea to publishing. *Against the Grain*. 29(5): 12-14. DOI: <https://doi.org/10.7771/2380-176X.7833>.

Lateef, E.B, Omotoso, A.O. & Owolabi, K.A. 2013. A survey of postgraduate students perceptions of University library resources in selected Nigerian Universities. *International Research: Journal of Library & Information Science*. 3(1): 102-115. Available: http://irjilis.com/wp-content/uploads/2013/05/8_IR084.pdf [2019, May 4].

Leedy, P.D. & Ormrod, J.E. 2015. *Practical research planning and design*. 11th ed. London: Pearson.

Leedy, P.D. & Ormrod, J.E. 2019. *Practical research: planning and design*. 12th ed. London: Pearson.

Liu, S. 2017. Embedding library services in research stages: Chinese subject services and the research lifecycle model. *International Journal of Librarianship*. 2(1): 16-31.

DOI: <https://doi.org/10.23974/ijol.2017.vol2.1.24>.

Lwehabura, M.J. 2018. An assessment of information literacy skills among first-year postgraduate students at Sokoine University of Agriculture Tanzania. *Journal of Library and Information Science*. 50(4): 427-434. DOI: 10.1177/0961000616667802.

Mamtora, J. 2013. Transforming library research services: towards a collaborative partnership. *Library Management*. 34(4/5): 352-371.

DOI: <http://dx.doi.org/10.1108/01435121311328690>.

Maree, K. & Van der Westhuizen, C. 2009. *Head start in designing research proposals in the social sciences*. Cape Town, South Africa: Juta.

Martinez, A.S. 2016. Constructing a model for Mexican libraries in the 21st century. In *Dynamic research support for academic libraries*. S. Hoffman, Ed. London: Facet Publishing. 9-21.

Maxcy, S.J. 2003. Pragmatic threads in mixed methods research in the social sciences: the search for multiple modes of inquiry and the end of the philosophy of formalism. In *Handbook of mixed methods in social and behavioural research*. A. Tashakkori & C. Teddlie, Eds. Thousand Oaks, California: Sage.

Maxwell, D. 2016. The research lifecycle as a strategic roadmap. *Journal of Library Administration*. 56: 111-123. DOI: 10.1080/01930826.2015.1105041.

Maxwell, J.A. & Loomis, D.M. 2003. Mixed methods design: an alternative approach. In *Handbook of mixed methods in social and behavioural research*. A. Tashakkori & C. Teddlie, Eds. Thousand Oaks, California: Sage.

McClellan, S., Detmering, R., Martinez, G. & Johnson, A.M. 2017. Raising the library's impact factor: a case study in scholarly publishing literacy for graduate students. *Libraries and the Academy*. 17(3): 543-568. DOI: <https://doi.org/10.1353/pla.2017.0034>.

Melles, A. & Unsworth, K. 2015. Examining the reference management practices of humanities and social sciences postgraduate students and academics. *Australian Academic & Research Libraries*. 46(4): 249-274.

DOI: <http://dx.doi.org/10.1080/00048623.2015.1104790>.

Motawah, W. A., Sen, B. & Willet, P. 2019. The role of Kuwait University libraries in supporting graduate students' research. *Qualitative and Quantitative Methods in Libraries*. 7(1): 67-76. Available: <http://qqml-journal.net/index.php/qqml/article/view/458> [2019, April 30].

Naik, M.M. 2014. Importance of information literacy. *International Journal of Digital Library Services*. 4(3): 92-100. Available: <http://www.ijodls.in/uploads/3/6/0/3/3603729/9434.pdf> [2019, June 9].

Namuleme, R.K. & Kanzira, A.N. 2015. Research support in academic libraries in Uganda: challenges and opportunities. In *The quest for deeper meaning of research support*. R Raju, A. Adam, G. Johnson, C. Miller & J. Pietersen, Eds. Cape Town: University of Cape Town. 29-40. Available: <http://openbooks.uct.ac.za/arl/index.php/uctlibraries/catalog/download/17/15/139-3> [2019, January 15].

Neuman, W.L. 2006. *Social research methods: qualitative and quantitative approaches*. 4th ed. Boston: Allyn and Bacon.

Nwagwu, W. 2012. Information sources and information needs of postgraduate students in engineering and arts in the University of Ibadan, Nigeria. *Collection Building*. 31(2): 66-77. DOI: 10.1108/002425398102334.

Ocholla, L., Mutsvunguma, G. & Hadebe, Z. 2017. The impact of new information services on teaching, learning and research at the University of Zululand Library. *South African Journal of Libraries and Information Science*. 82(2): 11-19. DOI: 10.7553/82-2-1620.

Odede, I. 2018. Information literacy skills among library and information sciences postgraduate students of Nnamdi Azikiwe University, Awka, Nigeria. *International Journal of Library Science*. 7(2): 32-36. DOI:10.5923/j.library.20180702.03

Okite-Amughor, F.A., Makgahlela, L. & Bopape, S. 2014. The use of electronic information resources for academic research by postgraduate students at Delta State University, Abraka, Nigeria. *South African Journal of Libraries and Information Science*. 80(2): 1-7. DOI:10.7553/80-2-177.

Onyancha, O.B. 2018. Navigating the rising metrics tide in the 21st century: which way for academic librarians in support of researchers in Sub-Saharan Africa? *South African Journal of Libraries and Information Science*. 84(2): 1-13. DOI: <http://dx.doi.org/10.7553/84-2-1762>.

Parker, R. 2012. What the library did next: strengthening our visibility in research support. *Proceedings of the 16th Biennial VALA Conference and Exhibition on "eM-powering eFutures."*. Melbourne Convention and Exhibition Centre, Melbourne Australia. 2-9 February 2012. 6-9. Available: <https://www.vala.org.au/direct-download/vala2012-proceedings/435-vala2012-session-1-parker-paper/file> [2019, January 15].

Pasipamire, N. 2015. Research support by subject librarians in selected state universities in Zimbabwe: accommodating new trends. In *The quest for deeper meaning of research support*. R Raju, A. Adam, G. Johnson, C. Miller & J. Pietersen, Eds. Cape Town: University of Cape Town. 61-79. Available: <http://openbooks.uct.ac.za/arl/index.php/uctlibraries/catalog/download/17/15/139-3> [2019, January 15].

Patterson, A. 2009. A need analysis for information literacy provision for research: a case study in University College Dublin. *Journal of Information Literacy*. 3(1): 5-18. Available: <http://ojs.lboro.ac.uk/ojs/index.php/JIL/article/view/PRA-V3-I1-2009-1> [2019, January 15].

Phoenix, S. & Henderson, M. 2016. Expanding library support for faculty research in historically black colleges and universities. *Journal of Library Administration*. 56(5): 572-594. DOI: 10.1080/01930826.2016.1180939.

Plano Clark, V.L. & Ivankova, N. 2016. *Mixed methods research: a guide to the field*. Thousand Oaks, California: Sage.

Palumbo, L. 2016. Championing institutional goals: academic libraries supporting graduate women in STEM. *The Journal of Academic Librarianship*. 42(3): 192-199.
DOI: <https://doi.org/10.1016/j.acalib.2016.03.003>.

Punch, K.F. 2014. *Introduction to social research: quantitative and qualitative approaches*. 3rd ed. Thousand Oaks, California: Sage.

Raju, R. & Schoombee, L. 2014. Research support through the lens of transformation in academic libraries with reference to the case of Stellenbosch University libraries. *South African Journal of Libraries and Information Science*. 79(2): 27-38.
DOI: <http://dx.doi.org/10.7553/79-2-155>.

Rasul, A. & Singh, D. 2010. The role of academic libraries in facilitating postgraduate students' research. *Malaysian Journal of Library and Information Science*. 15(3): 75-84.
Available: <https://mjlis.um.edu.my/article/view/6943> [2019, January 15].

Reitz, J.M. 2014. *Online dictionary for library and Information science*. Santa Barbara: ABC-CLIO. Available: https://www.abc-clio.com/ODLIS/odlis_d.aspx.

Rempel, H.G., Hussong-Christian, U. & Mellinger, M. 2011. Graduate student space and service needs: a recommendation for a cross-campus solution. *The Journal of Academic Librarianship*. 37(6): 480-487. DOI: <https://doi.org/10.1016/j.acalib.2011.07.004>.

Research Information Network and Research Libraries UK. 2011. *The value of libraries for research and researchers*. London: Research Information Network. Available: <https://www.rluk.ac.uk/wp-content/uploads/2014/02/Value-of-Libraries-report.pdf> [2019, March 15].

Research Information Network. 2010. Open to all?: case studies of openness in research. London: Research Information Network. Available: http://www.rin.ac.uk/system/files/attachments/NESTA-RIN_Open_Science_V01_0.pdf [2019, August 2].

Richardson, J., Nolan-Brown, T., Loria, P. & Bradbury, S. 2012. Library research support in Queensland: a survey. *Australian Academic & Research Libraries*. 43(4): 258-277.

DOI:10.1080/00048623.2012.10722287.

Rubin, A. & Babbie, E. 2009. *Essential research methods for social work*. 2nd ed. Belmont: Brooks/Cole Cengage Learning.

Sanjeeva, M.M. & Powdwal, S.C. 2017. Open access initiatives: reframing the role of librarians. *Library Herald*. 55(4): 467-487. DOI: 10.5958/0976-2469.2017.00037.9.

Schoombee, L. 2014. The curious instance of the library's travelling poll: determining obstacles in the research process. *Proceedings of the 35th Annual IATUL Conference on Measures for Success: Library's Resources and Effectiveness under scrutiny*. Aalto University, Helsinki, Finland. 2-5 June 2014. Aalto University Library: Finland. 1-17. Available: <https://docs.lib.purdue.edu/cgi/viewcontent.cgi?referer=andhttpsredir=1&article=2015&context=iatul> [2019, January 15].

Serrano-Vicente, R., Melero, R. & Abdal, E. 2016. Open access awareness and perceptions in an institutional landscape. *The Journal of Academic Librarianship*. 42: 595-603.

DOI: 10.1016/j.acalib.2016.07.002.

Sinkinson, C., Alexander, S., Hicks, A. & Kahn, M. 2012. Guiding design: exposing librarian and student mental models of research guides. *portal: Libraries and the Academy*. 12(1): 63-84. DOI: <https://doi.org/10.1353/pla.2012.0008>.

Siyao, P.O., Whong, F.M., Martin-Yeboah, E. & Namamonde, A. 2017. Academic libraries in four Sub-Saharan Africa countries and their role in propagating open science. *IFLA Journal*. 43(3): 242-255. DOI: <https://doi.org/10.1177/0340035217712263>.

Skarl, S. & Del Bosque, D. 2018. Going the distance for grads: what online graduate students want from the library. *Journal of Library and Information Services in Distance Learning*. 13(1-2): 167-183. DOI: <https://doi.org/10.1080/1533290X.2018.1499250>.

Speight, S. 2016. The Durham difference: supporting research at Durham University. In *Quality and the academic library: reviewing, assessing and enhancing service provision*. J.

Atkinson, Ed. Sawston, Cambridge: Chandos Publishing. DOI:
<https://doi.org/10.1016/C2014-0-02106-5>.

Statista. 2019. Swaziland: statistics and facts. Available:
<https://www.statista.com/topics/4659/swaziland/>. [2019, March 3].

Strutin, M. 2008. Making research guides more useful and more well used. *Issues in Science and Technology Librarianship*. 29: 1-11. DOI:10.5062/F4M61H5K.

Taha, A. 2010. Networked library services in a research-intensive university. *The Electronic Library*. 30(6): 844-856. DOI: 10.1108/00242531211220744.

Tancheva, K., Gessner, G.C., Tang, N., Furnas, H., Branchini, D. & Steinhart, G. 2016. *A day in the life of a (serious) researcher: envisioning the future of the research library*. New York: ITHAKA S+R. DOI: <https://doi.org/10.18665/sr.277259>.

Tavakol, M. & Dennick, R. 2011. Making sense of Cronbach's alpha. *International Journal of Medical Education*. 2: 53-55. DOI: 10.5116/ijme.4dfb.8dfd.

Tenopir, C., Birch, B. & Allard, S. 2012. *Academic libraries and research data services: current practices and plans for the future*. Chicago, Illinois: Association of College and Research Libraries. Available:
http://www.ala.org/acrl/sites/ala.org.acrl/files/content/publications/whitepapers/Tenopir_Birch_Allard.pdf [2019, March 15].

Tenopir, C., Hughes, D. & Allard, S. 2015. Research data services in academic libraries: data intensive roles for the future?. *Journal of eScience Librarianship*. 4(2): 1-21.
DOI: <http://dx.doi.org/10.7191/jeslib.2015.1085>.

Tenopir, C., Sandusky, R.J, Allard, S & Birch, B. 2014. Research data management services in academic research libraries and perceptions of librarians. *Library and Information Science Research*, 36(2): 84-90. DOI: <https://doi.org/10.1016/j.lisr.2013.11.003>.

Tewell, E., Mullins, K., Tomlin, N. & Dent, V. 2017. Learning about student research practices through an ethnographic investigation: insights into contact with librarians and use of

library space. *Evidence Based Library and Information Practice*. 12(4): 78-101.

DOI: 10.18438/B8MW9Q.

Tomaszewski, R. 2012. Information needs and library services for doctoral students and postdoctoral scholars at Georgia State University. *Science & Technology Libraries*. 31(4): 442-462. DOI: 10.1080/0194262X.2012.730465.

University of Eswatini. 2017. *Report of the Vice Chancellor 2016-2017*. Kwaluseni, Eswatini: Corporate Affairs Office. Available:

https://www.uniswa.sz/uniswa/UNISWA_VC_Report_2016-17.pdf [2019, January 20]

University of Eswatini. 2018. *Report of the Vice Chancellor 2017-2018*. Kwaluseni, Eswatini: Corporate Affairs Office. Available:

<http://www.uniswa.sz/sites/default/files/administration/vc/reports/vcr-report2017-18.pdf> [2019, January 20].

University of Eswatini. 2019a. *About UNESWA: university campuses*. Available:

<http://www.uniswa.sz/uniswainfo/campuses> [2019, February 15].

University of Eswatini. 2019b. *Academics: graduate programmes*. Available:

http://www.uniswa.sz/academics/graduate_programmes [2019, February 14].

University of Eswatini. 2019c. *UNESWA Library*. Available: <http://www.library.uniswa.sz/> [2019, February 14].

Vaughan, K.T.L., Hayes, B.E., Lerner, R.C., McElfresh, K.R., Pavlech, L., Romito, D., Reeves, H.M. & Morris, E.N. 2013. Development of the research lifecycle model for library services. *Journal of the Medical Library Association*. 101(4): 310-314.

DOI: 10.3163/1536-5050.101.4.013.

Venitha, P. 2015. *Policy briefs: The role of research and post graduate studies in African higher education*. Dakar, Senegal: Association for the Development of Education in Africa. Available: https://www.idea-phd.net/images/doc-pdf/Policy_Brief_The_Role_Of_Research_And_Post_Graduate_Studies.pdf [2020, June 16].

Wiklund, G. & Voog, H. 2013. It takes two to tango-making way for relevant research support services at Lund University Libraries (LUB). *ScieCom Info*. 9(1). Available: <https://journals.lub.lu.se/sciecominfo/article/view/11922/10591> [2019, March 15].

Williams, P. & Rowlands, I. 2014. In an uncharted territory: libraries' new and emerging services for eresearch. In *Demystifying eresearch: a primer for librarians*. V. Martin, Ed. Santa Barbara, California: Libraries Unlimited. 121-150.

Wolhuter, C. 2015. Steps in the research process. In *Educational research: an African approach*. C. Okeke & M. van Wyk, Eds. Cape Town, South Africa: Oxford University Press.

World Population Review. 2019. Swaziland population 2019. Available: <http://worldpopulationreview.com/countries/swaziland-population/> [2019, February 14].

Wusu, O.H. 2018. Perception of postgraduate students towards open access publication in some selected institutions in Malaysia. *SocArXiv*. DOI: 10.31235/osf.io/a4mjz.

Yin, R.K. 2018. *Case study research and applications: design and methods*. 6th ed. Thousand Oaks, California: Sage.

Appendices

Appendix A: Semi-structured interview schedule for librarians at UNESWA

Library research support for masters and PhD students at the University of Eswatini

Preamble

You have consented to participation in this study. To reiterate, my name is Khosie Dlamini and I am a Master of Library and information Studies (MLIS) student in the Department of Knowledge and Information Stewardship at the University of Cape Town. I am currently engaged in a study on library research support for masters and PhD students at the University of Eswatini. My study is supervised by Professor Jaya Raju and Ms Andiswa Mfengu. The objective of this study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at UNESWA. The research lifecycle as adapted by Schoombee (2014) has been adopted as supporting theory for this study. As part of this study I will need to interview UNESWA librarians to understand the research support services that are currently offered in their respective libraries to support masters and PhD students research. I therefore request your participation in this study.

This study has received ethics clearance from both the Universities of Cape Town (where the study is registered) and Eswatini (research site).

Section A: Biographical information

1. Which campus library are you currently employed in?
2. For how many years have you been employed at UNESWA Libraries?
3. What is your job title?
4. What is your highest academic qualification?
5. What is your highest Library and Information Science (LIS) qualification?

Section B: Current research support services provided by UNESWA Libraries

6. The research process is made up of a sequence of different phases with various activities. According to Schoombee (2014) the research process has six stages consisting of thirty-four subadjacent activities. This sequence of the different stages and activities of the research process is cyclically presented as the research lifecycle.

Schoombee (2014) explains that during the research process researchers have library research needs at each stage and this presents libraries with opportunities to provide support at each of these stages.

What research support services do UNESWA Libraries provide to support masters and PhD students' library needs in each of the stages of the research lifecycle as enumerated by Schoombee (2014)?:

- Prepare (Ideas and planning) [the researcher plans and prepares for the research]
 - Gather [the researcher collects research resources and conducts research, for example, compiling a research proposal and collecting data]
 - Create [the researcher has collected the data and is compiling the research report]
 - Manage and preserve [the researcher engages in research data management and planning]
 - Share and collaborate [the researcher engages in research visibility optimisation and publishing]
 - Measure [the researcher engages in assessing the impact of the research, for example, ascertaining h-index, citation scores, etc.]
7. Are there any other library services outside of these stages of the research process that have been specifically designed by UNESWA Libraries to support masters and PhD students' research?
8. Does UNESWA Libraries partner with any other departments at UNESWA to collaboratively support masters and PhD students research? Please elaborate on your response?

Section C: Library research needs of UNESWA masters and PhD students

9. The research process is made up of a sequence of different phases with various activities. According to Schoombee (2014) the research process has six stages consisting of thirty-four subjacent activities. This sequence of the different stages and activities of the research process is cyclically presented as the research lifecycle.

Schoombee (2014) explains that during the research process researchers have library research needs at each stage.

What are the library research needs of UNESWA masters and PhD students in each of the stages of the research lifecycle as enumerated by Schoombee (2014)?:

- Prepare (Ideas and planning) [the researcher plans and prepares for the research]
- Gather [the researcher collects research resources and conducts research, for example, compiling a research proposal and collecting data]
- Create [the researcher has collected the data and is compiling the research report]
- Manage and preserve [the researcher engages in research data management and planning]
- Share and collaborate [the researcher engages in research visibility optimisation and publishing]
- Measure [the researcher engages in assessing the impact of the research, for example, ascertaining h-index, citation scores, etc.]

Section D: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students

10. To what extent does UNESWA Libraries meet the library research needs of masters and PhD students? Please elaborate on your response?

Section E: Proposed research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students

11. In addition to what is currently provided, what additional library research support would you suggest for more complete research support of UNESWA masters and PhD students?

12. Please share any future plans UNESWA Libraries might have for masters and PhD students' library research support?

Section F: General comments

13. Do you have any additional comments to make regarding library research support for UNESWA masters and PhD students that have not already been covered in this interview?

Thank you for your time and contribution

[Duration of interview: ___ minutes]

Appendix B: Semi-structured interview schedule for academics at UNESWA

Library research support for masters and PhD students at the University of Eswatini

Preamble

You have consented to participation in this study. To reiterate, my name is Khosie Dlamini and I am a Master of Library and information Studies (MLIS) student in the Department of Knowledge and Information Stewardship at the University of Cape Town. I am currently engaged in a study on library research support for masters and PhD students at the University of Eswatini (UNESWA). My study is supervised by Professor Jaya Raju and Ms Andiswa Mfengu. The objective of this study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at UNESWA. The research lifecycle as adapted by Schoombee (2014) has been adopted as supporting theory for this study. As part of this study I will need to interview UNESWA academics to understand the library research needs of masters and PhD students at UNESWA. I therefore request your participation in this study.

This study has received ethics clearance from both the Universities of Cape Town (where the study is registered) and Eswatini (research site).

Section A: Biographical information

1. What is your academic rank in the university? [e.g. Associate professor, or Professor]
2. Which academic department are you part of?
3. Have you supervised to completion masters students? If so, how many?
4. Have you supervised to completion PhD students? If so, how many?

Section B: Library research needs of UNESWA masters and PhD students

5. The research process is made up of a sequence of different phases with various activities. According to Schoombee (2014) the research process has six stages consisting of thirty-four subagent activities. This sequence of the different stages and activities of the research process is cyclically presented as the research lifecycle.

Schoombee (2014) explains that during the research process, researchers have library research needs at each stage.

In your experience of supervision of masters and/or PhD students, what library research needs do you believe UNESWA masters and PhD students have in each of the stages of the research lifecycle as enumerated by Schoombee (2014)?:

- Prepare (Ideas and planning) [the researcher plans and prepares for the research]
- Gather [the researcher collects research resources and conducts research, for example, compiling a research proposal and collecting data]
- Create [the researcher has collected the data and is compiling the research report]
- Manage and preserve [the researcher engages in research data management and planning]
- Share and collaborate [the researcher engages in research visibility optimisation and publishing]
- Measure [the researcher engages in assessing the impact of the research, for example, ascertaining h-index, citation scores, etc.]

Section C: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students

6. To what extent do you believe UNESWA Libraries meet the library research needs of masters and PhD students? Please elaborate on your response?

Section D: Proposed research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students

7. In addition to the current library research support services provided by UNESWA Libraries, what other research support services would you suggest UNESWA Libraries provide for more complete library research support for UNESWA masters and PhD students?

Section E: General comments

8. Do you have any additional comments to make regarding library research support for UNESWA masters and PhD students that have not already been covered in this interview?

Thank you for your time and contribution

[Duration of interview: ___ minutes]

Appendix C: Structured questionnaire for masters and PhD students at UNESWA

Library research support for masters and PhD students at the University of Eswatini

Preamble

My name is Khosie Dlamini and I am a Master of Library and information Studies (MLIS) student in the Department of Knowledge and Information Stewardship (DKIS) at the University of Cape Town. I am currently engaged in a study on library research support for masters and PhD students at the University of Eswatini (UNESWA). My study is supervised by Professor Jaya Raju and Ms Andiswa Mfengu. The objective of this study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at UNESWA. The research lifecycle as adapted by Schoombee (2014) has been adopted as supporting theory for this study. As part of this study I need to conduct a census of all masters and PhD students at UNESWA to establish their library research needs.

Please be assured that that your participation in this study will remain anonymous and that you will not be identified in any specific way. Your responses will be treated confidentially and will be used for research purposes only. Your participation in this study is voluntary, and you have the right to withdraw from the study at any time. Please be aware that you are not under any obligation to respond to the items presented. I will, however, appreciate your participation as it will contribute to knowledge on library research support for masters and PhD students. Your completion of this questionnaire implies consent to participation. It should take you no more than 20 minutes to complete this questionnaire.

This study has received ethics clearance from both the Universities of Cape Town (where the study is registered) and Eswatini (research site).

Instruction

Please respond to items by ticking **(v)** the relevant/most applicable or by providing responses in the spaces provided.

Section A: Biographical information

1. What programme are you currently enrolled in?

- Master of Arts in History (M.A. History)
- Master of Business Administration (MBA)
- Master of Education in Adult Education (M.Ed. Adult Ed.)
- Master of Education in Curriculum & Teaching (M.Ed. Curr. & Teach.)
- Master of Education in Educational Foundations & Management (M.Ed Ed. Found. & Mgt)
- Master of Education in Primary Education (M.Ed. Primary)
- Master of Nursing Science in Family Nurse Practice (M.NSc. FNP)
- Master of Science in Agricultural and Applied Economics (M.Sc. Agric. & App. Econ)
- Master of Science in Agricultural Education (M.Sc. Agric. Ed.)
- Master of Science in Agricultural Extension (M.Sc. Agric. Ext.)
- Master of Science in Animal Science (M.Sc. Ani. Sc.)
- Master of Science in Chemistry (M.Sc. Chemistry)
- Master of Science in Computational Physics (M.Sc. Comp. Physics)
- Master of Science in Conservation Ecology (M.Sc. Cons. Ecol.)
- Master of Science in Consumer Science Education (M.Sc. COSE)
- Master of Science in Crop Protection (M.Sc. Crop Protection)
- Master of Science in Crop Science (M.Sc. Crop Science)
- Master of Science in Environmental Resources Management (M.Sc. ERM)
- Master of Science in Food Science & Technology (M.Sc. FST)
- Master of Science in Horticulture (M.Sc. Hort.)
- Master of Science in Mathematics (M.Sc. Maths)
- Master of Science in Midwifery (M.Sc. Midwifery)
- Master of Science in Textiles (M.Sc. Textiles)
- Doctor of Philosophy in Agricultural & Applied Economics (Ph.D. Ag. & App. Econ.)
- Doctor of Philosophy in Agricultural Education (Ph.D. Ag. Ed.)

2. Study option:

- Full-time
- Part-time

3. Which year of masters or PhD study are you currently in?

- 1st
- 2nd
- 3rd
- 4th
- 5th
- Other, please specify _____

Section B: Current research support services provided by UNESWA Libraries

4. Which of the following library research support services do UNESWA Libraries provide to support your research?

Stages in the research process (Schoombee, 2014)	Library research support services Support/resources for:	Response (v)
Prepare (Ideas and planning)	Choosing a topic	
	Formulating research questions	
	Background reading	
	Securing funding	
	Suitable workspaces	
	Planning the project	
	Relevant skills training	
Gather	Literature review	
	Research methods and design	
	Research proposal	
	Collecting data	
	Ethics approval	
Create	Proofreading	
	Complying with copyright	
	Avoiding plagiarism	
	Referencing and bibliography	
	Writing and editing	
	Interpreting results	
Manage and preserve	Backing up research	
	Making datasets discoverable	
	Archiving output	
	Managing and archiving datasets for future use	
	Sharing datasets	
Share and collaborate	Research visibility	
	Building a research network	
	Collaborating with other researchers	
	Securing publication funding	
	Publishing	
Measure	Metrics to support funding applications	
	Metrics to demonstrate research impact	
	Metrics to decide where to publish	

Section C: Library research needs of UNESWA masters and PhD students

5. What library research support do you need from UNESWA Libraries?

Library research support needs Support/resources for:	Yes	No	I am not sure
Choosing a topic			
Formulating research questions			
Developing a budget			
Securing funding			
Identifying a supervisor			
Background reading			
Suitable workspaces			
Planning your research project			
Relevant skills training			
Literature review			
Research methods and design			
Research proposal			
Collecting data			
Ethics approval			
Proofreading			
Complying with copyright			
Avoiding plagiarism			
Referencing and bibliography			
Writing and editing			
Interpreting results			
Backing up my research			
Making datasets discoverable			
Archiving output			
Managing and archiving datasets for future use			
Sharing datasets			
Research visibility			
Building a research network			
Securing publication funding			
Using metrics to support funding application			
Using metrics to demonstrate impact			
Using metrics to decide where to publish			

Section D: Extent of UNESWA Libraries meeting the library research needs of masters and PhD students

6. To what extent does UNESWA Libraries meet your library research needs?

Library research needs Support/resources for:	Not at all	To a minimal extent	To a moderate extent	To a great extent
Choosing a topic				
Formulating research questions				
Developing a budget				
Securing funding				
Identifying a supervisor				
Background reading				
Suitable workspaces				
Planning your research project				
Relevant skills training				
Literature review				
Research methods and design				
Research proposal				
Collecting data				
Ethics approval				
Proofreading				
Complying with copyright				
Avoiding plagiarism				
Referencing and bibliography				
Writing and editing				
Interpreting results				
Backing up my research				
Making datasets discoverable				
Archiving output				
Managing and archiving datasets for future use				
Sharing datasets				
Research visibility				
Building a research network				
Publication funding assistance				
Using metrics to support funding application				
Using metrics to demonstrate impact				
Using metrics to decide where to publish				

Section E: Proposed research support services to accommodate any deficiency in library research support for UNESWA masters and PhD students

7. In addition to the current library research support services provided by UNESWA Libraries to support you as a masters/PhD student, what other research support

services would you suggest UNESWA Libraries provide for more complete research support?

Section F: General comments

8. Do you have any additional comments to make regarding library research support for UNESWA masters and PhD students that have not already been covered in this questionnaire?

Thank you for your time and contribution

Contact information

If you have any questions or concerns about this study, please contact:

Khosie Dlamini (Researcher)

dImkho008@myuct.ac.za

+26876259629

Appendix D: Informed consent for UNESWA librarians

Library research support for masters and PhD students at the University of Eswatini

Description of research and participation:

My name is Khosie Dlamini and I am a Master of Library and information Studies (MLIS) student in the Department of Knowledge and Information Stewardship at the University of Cape Town. I am currently engaged in a study on library research support for masters and PhD students at the University of Eswatini. My study is supervised by Professor Jaya Raju and Ms Andiswa Mfengu. The objective of this study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini. The research lifecycle as adapted by Schoombee (2014) has been adopted as supporting theory for guiding this study. As part of this study I will need to interview UNESWA librarians to understand the research support services that are currently offered in their respective libraries to support masters and PhD students research. I therefore request your participation in this study. This study has received ethics clearance from both the Universities of Cape Town (where the study is registered) and Eswatini (research site).

Confidentiality

Please be assured that your participation in this study will remain anonymous and that your name will not be used in the study. You will not be identified in any specific way and all responses in this study will be treated with utmost confidentiality. Your responses will only be used for research purposes.

Voluntary participation

Your participation in this study is voluntary, and you have the right to withdraw from the interview at any time. Please be aware that you are not under any obligation to respond to the questions that I will be asking. The interview will only be recorded as per your agreement. Your participation will be greatly appreciated.

Benefits

There are no direct personal benefits for participating in this study. However, the study will contribute in enhancing the wealth of information on library research support in academic libraries, which may be used in developing research library support further.

Contact information

If you have any questions or concerns about this study, please contact:

Khosie Dlamini (Researcher) dlmkho008@myuct.ac.za +26876259629

Informed consent

I freely consent to take part in this study. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop participating at any point should I not wish to continue. I also confirm that the purpose of the study has been fully explained to me. I understand that this is a research project whose purpose is not necessarily to benefit me personally in the immediate or short term. I also understand that my participation will remain anonymous and that the information I provide will be treated confidentially. I agree/do not agree to this interview being recorded.

Signature of researcher..... Date:

Signature of participant..... Date:

Appendix E: Informed consent for academics at UNESWA

Library research support for masters and PhD students at the University of Eswatini

Description of research and participation:

My name is Khosie Dlamini and I am a Master of Library and Information Studies (MLIS) student in the Department of Knowledge and Information Stewardship at the University of Cape Town. I am currently engaged in a study on library research support for masters and PhD students at the University of Eswatini (UNESWA). My study is supervised by Professor Jaya Raju and Ms Andiswa Mfengu. The objective of this study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini. The research lifecycle as adapted by Schoombee (2014) has been adopted as supporting theory for guiding this study. As part of this study I will need to interview UNESWA academics to understand the library research needs of masters and PhD students at UNESWA. I therefore request your participation in this study. This study has received ethics clearance from both the Universities of Cape Town (where the study is registered) and Eswatini (research site).

Confidentiality

Please be assured that your participation in this study will remain anonymous and that your name will not be used in the study. You will not be identified in any specific way and all responses in this study will be treated with utmost confidentiality. Your responses will only be used for research purposes.

Voluntary participation

Your participation in this study is voluntary, and you have the right to withdraw from the interview at any time. Please be aware that you are not under any obligation to respond to

the questions that I will be asking. The interview will only be recorded as per your agreement. Your participation will be greatly appreciated.

Benefits

There are no direct personal benefits for participating in this study. However, the study will contribute to knowledge on library research support in academic libraries, which may be used in further developing library research support.

Contact information

If you have any questions or concerns about this study, please contact:

Khosie Dlamini (Researcher) dlmkho008@myuct.ac.za +26876259629

Informed consent

I freely consent to take part in this study. I understand that I am participating freely and without being forced in any way to do so. I also understand that I can stop participating at any point should I not wish to continue. I also confirm that the purpose of the study has been fully explained to me. I understand that this is a research project whose purpose is not necessarily to benefit me personally in the immediate or short term. I also understand that my participation will remain anonymous and that the information I provide will be treated confidentially. I agree/do not agree to this interview being recorded.

Signature of researcher..... Date:

Signature of participant..... Date:

Appendix F: Mapping the critical questions and relevant theory to sources of data and data collection instruments

	Research approach	Research paradigm		Research design	
Selection	Convergent parallel mixed methods approach	Pragmatism paradigm		Case study	
Research objective	Critical questions & chapter location	Relevant theory	Source of data/ target population	Research method	Data collection instrument
The main objective of the study is to ascertain the extent of research support by UNESWA Libraries for masters and PhD students at the University of Eswatini.	1. What are the current services being provided by UNESWA Libraries to support masters and PhD students at the University of Eswatini? Chapters 1, 3, 4 and 5	1.1. Schoombee's (2014) research lifecycle adapted for library research support	1.1.1. Masters and PhD students at UNESWA (Census) 1.1.2. Librarians at UNESWA purposively sampled	1.1.1.1. Questionnaire for masters and PhD students 1.1.2.1. Interviews with librarians at UNESWA	1.1.1.1.1. Structured questionnaire for masters and PhD students 1.1.2.1.1. Semi-structured interview schedule for UNESWA librarians
	2. What are the library research needs of masters and PhD students at UNESWA? Chapters 1, 2, 3, 4 and 5	2.1. Schoombee's (2014) research lifecycle adapted for library research support	2.1.1. Masters and PhD students at UNESWA (Census) 2.1.2. Librarians at UNESWA purposively sampled 2.1.3. Academics at UNESWA purposively sampled	2.1.1.1. Questionnaire for masters and PhD students 2.1.2.1. Interviews with librarians at UNESWA 2.1.3.1. Interviews with academics at UNESWA	2.1.1.1.1. Structured questionnaire for masters and PhD students 2.1.2.1.1. Semi-structured interview schedule for UNESWA librarians 2.1.3.1.1. Semi-structured interview schedule for academics at UNESWA
	3. To what extent are these needs being met by UNESWA Libraries? Chapters 1, 3, 4 and 5	3.1. Schoombee's (2014) research lifecycle adapted for library research support	3.1.1. Masters and PhD students at UNESWA (Census) 3.1.2. Librarians at UNESWA purposively sampled	3.1.1.1. Questionnaire for masters and PhD students 3.1.2.1. Interviews with librarians at UNESWA	3.1.1.1.1. Structured questionnaire for masters and PhD students 3.1.2.1.1. Semi-structured interview schedule for UNESWA librarians

			3.1.3. Academics at UNESWA purposively sampled	3.1.3.1. Interviews with academics at UNESWA	3.1.3.1.1. Semi-structured interview schedule for academics at UNESWA	
4. If there are library research needs of masters and PhD students at UNESWA that are not being met by UNESWA Libraries, what research support services need to be put in place to address this deficiency? Chapters 1, 3, 4 and 5	4.1. Schoombee's (2014) research lifecycle adapted for library research support	4.1.1. Masters and PhD students at UNESWA (Census)	4.1.2. Librarians at UNESWA purposively sampled	4.1.3. Academics at UNESWA purposively sampled	4.1.1.1. Questionnaire for masters and PhD students 4.1.2.1. Interviews with librarians at UNESWA 4.1.3.1. Interviews with academics at UNESWA	4.1.1.1.1. Structured questionnaire for masters and PhD students 4.1.2.1.1. Semi-structured interview schedule for UNESWA librarians 4.1.3.1.1. Semi-structured interview schedule for academics at UNESWA

Appendix G: UCT ethics approval letter



Department of Knowledge & Information Stewardship
University of Cape Town
Upper Campus

Private Bag XI, RONDEBOSCH, 7701 South Africa
Level 6 Hlanganani, The Chancellor Oppenheimer Library
Tel: +27 (0) 21 650 4546 Fax: +27 (0) 21 650 2529
E-mail: dkis@uct.ac.za
Internet: www.dkis.uct.ac.za

Ref No.: UCTDKI2019-10-09

12 November 2019

Dear Ms Dlamini,

Ethics approval for master's research

I am pleased to inform you that ethics clearance has been granted by an Ethics Review Committee of the Department of Knowledge and Information Stewardship on behalf of the Faculty of Humanities, UCT, for you to proceed with collecting data for your Master's study on 'Library research support for masters and PhD students at the University of Eswatini'.

As a next step, please ensure that you obtain approval from the relevant ethics committee to collect data at your data collection site(s), as necessary.

We wish you well with your data collection and the completion of your research.

Yours faithfully,

Signature Removed

Dr Mzwandile Shongwe
Chair: Department (DKIS) Research Ethics Committee

Appendix H: UNESWA ethics approval letter



UNIVERSITY OF ESWATINI

Private Bag No.4 Kwaluseni M201, Eswatini
Tel. (+268) 2517 0110 Fax (+268) 2517 0001
E-mail: zngcobo@uniswa.sz

LIBRARIAN

Z.G. Ngcobo, B.A. + CCE (UBLS), MLS,(Dalhousie), PhD (Pittsburgh)

Our Ref: LIB/K/311
25th November, 2019

Ms. Khosie Dlamini
P.O. Box 231
Manzini

RE: APPLICATION FOR RESEARCH DATA COLLECTION

This is to acknowledge receipt of your letter seeking permission to collect data through questionnaires and interviews as well as a letter of approval from the Ethics Review Committee of the Department of Knowledge and Information Stewardship on behalf of the Faculty of Humanities, University of Cape Town. This letter serves to grant Ms Khosie Dlamini a student at UCT who is pursuing a master's degree in Library and Information Studies to collect data for a research study on how the Uneswa Libraries provide support for master s and PhD students who are enrolled at the University of Eswatini.

It is envisaged that the outcome of the study will provide areas of improvement of the service to library users in general and post graduate students in particular.

Ms Dlamini is expected to collect data between November and December 2019 from teaching staff, Librarians and Post Graduate students who are library users.

For further information you may contact the Librarian's office.

Sincerely,

Signature Removed

Z. G. NGCOBO