

**Strategies for converting traditional academic library spaces to
research commons:A South African perspective**

by

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DECLARATION

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I **Refilwe Agnes Matatiele**, declare that:

**Strategies for converting traditional academic library spaces to research commons:
A South African perspective**

is my work, and that all the sources I have used or quoted have been indicated and acknowledged by means of complete references.

Signature:
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Date: 09/11/2020



Supervisor: Dr. T. Mugwisi

09/11/2020

Date

DEDICATION

Dedicated to Mrs N.D. Phala, my angel mama, the wind beneath my wings.

Gontse!

It is Well!

ACKNOWLEDGEMENTS

This research study would not have seen the light of day and successful completion without the prayers, support and encouragement of my family, friends and colleagues.

My special appreciation and admiration to my precious jewels: Motladi, MacGyver and Kebaabetswe Matatiele. I love you forever, keep your eyes on the rock.

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My utmost gratitude to my editor, Dr T. Mkhonto for his input and encouragement.

Kea leboga, NtateModimo!

Thank You, Father God!

LIST OF ABBREVIATIONS

ACU	Association of Commonwealth Universities
AI	Artificial Intelligence
ARL	Association of Research Libraries
CC	Cultural Commons
CD	Compact Disc
DHET	Department of Higher Education and Training
GP	Gauteng Province
HAU	Historically Advantaged Universities
HDU	Historically Disadvantaged Universities
IOT	Internet of Things
LC	Library Commons
LibGuides	Library Guides
LIS	Library and Information Science
ML	Machine Learning
MOU	Memorandum of Understanding
NRF	National Research Foundation
OHS	Occupational Health and Safety
PC	Physical Commons
PCs	Personal Computers
RC	Research Commons
RCM	Research Commons Model
RFID	Radio Frequency Identification
RKI	Research, Knowledge & Information
RO	Research Office
RLC	Research Library Consortium
RS	Research Space
SABS	South African Bureau of Standards
TTO	Tech Transfer Office
UCLA	University of California Los Angeles
UCT	University of Cape Town
UJ	University of Johannesburg
UKZN	University of Kwa-Zulu Natal
UNISA	University of South Africa

UP	University of Pretoria
UREC	UNISA Research Ethics Committee
USA	United States of America
USB	Universal Serial Bus
VC	Virtual Commons
Wits	University of Witwatersrand

ABSTRACT

Background: Over the years, the traditional academic library has been the quintessential repository for hard-copy materials and relevant information resources to support the teaching, learning and research activities of their parent universities. Accordingly, the reinvention of the academic library and its transition to the research commons model was induced by the combined effect of historical and momentous developments such as: globalisation; the worldwide democratisation of societies; the advent of mass higher education; as well as the irreversible proliferation of information and communication technologies and their tectonic impact on the knowledge economy.

Purpose: This research study investigated strategies applied when converting traditional university libraries to the research commons service delivery model in South Africa. The study also sought participants' perspectives in the identification of success factors and constraints to such conversion strategies.

Methodology: The study adopted a combined qualitative-quantitative approach involving interviews, observations and questionnaires. Three public university libraries in Gauteng Province were involved as case studies to determine the extent of their orientation to the research commons model. In this regard, the study sample consisted of a manager/librarian from each of the three university libraries. Data was collected primarily by means of a survey questionnaire and semi-structured individual interviews. Explorative, descriptive and interpretive elements were applied to complement the data collection and analysis processes. Thematic data analysis was used for the ultimate categorisation and merging of both the questionnaire- and interview-based data accrued from the selected participants.

Results: Overall, the study found that careful planning and identification of positive conversion factors were critical aspects for successful implementation and evolution of any current or future research commons model. Critical factors included: formation of a research library consortium; establishing one-stop multifunctional spaces; and ongoing user and space assessment to adjust services, resources and spaces accordingly to suit changing technologies, postgraduate needs and contemporary learning styles on time and as required. Meanwhile, conversion hindrances included: model misconception by university leadership; strategic planning and change management deficiencies; poor communication; homogeneous staffing models and budgetary constraints.

Key terms: traditional academic library, learning commons, research commons, strategy, student support

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CHAPTER ONE

INTRODUCTION AND BACKGROUND

1.1 Introduction

“21st century library spaces, facilities and staffing models will all be defined by what users want and how they choose to use them, not by what librarians decide to offer the users. In this way, we will never be finished building this space; it will be a dynamic, (r) evolutionary space”(Stuart 2009:14)

Traditionally, the primary function of academic libraries has been to house books and information resources for the purpose of supporting teaching, learning and research-related activities of their parent institutions (Waller 2011). The academic library also provided several other fundamental functions, such as access to information sources, reference services and library spaces (Xia 2005). In this regard, it has become customary for academic libraries to be known as “collection centred”, focusing on the acquisition, organisation and storage of information for ease of access and future use (Saroja & Minhaj 2015). The interior order of a quintessential academic library is characterised by an ambience of quietness reflecting its studious users; no drinking and eating policy; stacks of long bookshelves; and dark wooden furniture fixed along individual study carrels bounded by time and place of a yonder era. The spatial arrangement inside such libraries is demarcated by an isolated information desk, staff offices and information training rooms, which compels reference librarians to refer library users or clients from one service point to another; and from one academic department to another. Such isolator spatial arrangements inside traditional university libraries were an anachronism in the contemporary in the digital era (Corrall 2018).

The advent and consequent proliferation of Information and Communication Technology (ICT) has changed the operations of the 21st century libraries and their adaptation to the new knowledge-sharing and information-based ecosystem (Corrall 2018). In this regard, the commons model is amenable to transforming the information/ reference desks to one-stop service points; which are premised on a service delivery model designed to converge space, people (users/ clients), technology and resources in the serve of a common goal (Tran 2018). For the university, such a model is beneficial for increasing postgraduate pass rates and research outputs, among other advantages (Tran 2018). The digital connectivity of the commons model enhances the capacity of libraries to offer services asynchronously; that is, enhancing library users to access online information resources anywhere in the world at any time across time and geographical

boundaries (Kumar & Cheddie 2014). Furthermore, such post-traditional modern libraries provide users with the means to access a broad range of educational and research resources beyond their library holdings in a seamless virtual environment (Adamou, Ntoka, Boshuijzen-Van Burken & Mörtberg 2017). Such access is facilitated mainly through the Internet and wireless fidelity (Wi-Fi) connectivity, which expose users to an endless world of information beyond the physical and environmental confines of their local libraries.

However, the shift from the physical to the digital library mode has created a physical space dilemma induced by the proliferation of ICT and its facilitation of inordinate digital data sources, which consequently attracted increasing numbers of 'cyber generation' undergraduate and postgraduate student to library facilities (Silka & Rumery 2013). Thus, the shift has also enhanced open scholarship, electronic teaching and learning systems (Sakia/ Blackboard) that provide university students with the platform to interact with their modules and other related administrative activities. Additionally, the virtual mode of information and knowledge-sharing also allows for self-publishing and facilitates access and usage of productivity tools and statistical software. It is against this background that the idea of the research commons (RC) was invented and developed (Farmer 2016).

The research commons is a hybrid user-centred service delivery model focusing primarily on postgraduate students' and researchers' needs and preferences in respect of usage of library facilities (Kumar & Cheddie 2014). Beagle (1999), who is considered an authority on the research commons model, accentuates the RC model's value on the basis of its enhancement of technological inter-connectedness between library services, staff and users. Beagle, Bailey and Tierney (2006) propound further that the physical, virtual and cultural commons constitute the most fundamental three elements of the commons model, in conjunction with their innovative synergy with technology, services, staff and users.

As a significant component of the research commons model (RCM), the physical commons (PC) is a *place* in a library that has been redesigned for improved services (Beagle 2011). Ideally, this new space should be characterised by high-tech, high-touch state-of-the-art computing systems, as well as comfortable movable furniture with customised finishing touches to suite the RC users' needs (Peterson, Peterson,

Akkurt & Passonneau 2013). Therefore, the research commons model has redefined the conventional mode of library space by providing, amongst other interior features, access to wireless networks, discussion rooms, blended service points, phone booths, vending machines, seminar rooms, kitchenette and café services (Daniels, Darch & de Jager 2010; McHone-Chase 2009).

In the RC model, the reconfiguration of spatial arrangements enables service users to engage in their work collaboratively, and for longer periods at a time (Bradley 2004). Such spatial arrangements are reflective of the RC's capacity to create a 'one-stop-shop' continuum of facilities and services (Farrell 2015). However, the 'one-stop-shop' approach could only work effectively with the integration of reference services and information technology at a single service point (Franks 2008). Given the integrative imperative of RC, it then becomes important, nay, sacrosanct, for practitioners in the knowledge and information management fraternity to explore and understand the effects this shift has imposed on the traditional library model by also focusing on the physical layout that should host contemporary facilities; and how the physical layout itself has extended its services to the virtual spaces (Silka & Rumery 2013). Hence, the non-conversion of the library spaces could hugely render the RC model prematurely ineffective even before its launch.

Therefore, the foundational premises of the conversion process rests on the preparation of librarians/ library managers mentally and physically to adapt to this momentous shift. Such preparation could be effected through workshops and formal training programmes to enable librarians' understanding of the research commons concept and its emphasis on transitioning the library from a physical place to an abstract space; from traditional to contemporary services and resources (Keating & Gabb 2005). Given the importance of the conversion or transitioning process, it was therefore imperative for this study to investigate both the success factors and constraints relating to the strategies applied for such conversion.

Virtual commons (VC), another critical component of the RC model, is an inevitable extension of the physical commons, and should not be mistaken for a library homepage or website. 'Virtual commons' is less expensive, compared to building the physical commons (Beagle 2010; Scott 2009). The virtual commons basically provides software, hardware and free Internet connectivity and access to information resources such as

audio records, video content, live chat features and online library guides (LibGuides), as well as online feedback and communication platforms (Lippincott 2009). As a service to its users, the VC paradigm further advocates for workshops and one-on-one consultations around the application and usage of these technological tools (Beagle 2010).

The 'cultural commons', a critical component of the RC model, is absolutely essential in the conversion or transitioning process. Characteristically, the cultural commons aspect of the RCM gives effect to the collaborative knowledge-sharing, learning and working practices and functions occurring virtually and non-virtually within the agency of a library as a non-physical "place" (Weiner, Doan & Kirkwood 2010). As such, the cultural commons should bring traditionally separate departments to work towards a shared vision and create a pool of services and resources, such as staff skills, budget, space and technology (Perrault, McClelland, Austing & Sieppert 2011). In such a context, partnerships and collaborations (including students) take place within and beyond the physical borders of the library. Necessarily, then, librarians should collaborate with other campus stakeholders in order to strengthen these partnerships; promote understanding of the legal and ethical use of information; access to research data and its management; as well as technology use (Beagle 2010). These new roles are emblematic of the impact of higher education transformation on the new roles of RC librarians in research libraries (Jaguszewski & Williams 2013a).

1.2 Background

The emergence of the Internet and search engines generally created uncertainty about the library's future and position as a physical space (Silka & Rumery 2013). The physical library faced a dilemma because students gradually relied on information technology (IT) rather than on the academic library offerings, which negatively affected the library gate counts (Gardner & Eng 2005). Furthermore, the academic library's existence faced the threat induced by the collective impetus of social media and IT, both of which have enabled contemporary researchers and postgraduate students to communicate, socialise and create content (Silka & Rumery 2013). This 'cyber generation' literally spends more time surfing the web for information on their personal computers (PCs), mobile devices or library computers. These technologically inclined students generally rely on search engines such as Google for their personal, educational, information gathering and problem solving needs, which has consequently propelled them to work collaboratively

(Beagle 2010). They only consult librarians and subscription databases as a non-compulsory alternative (Daland & Walmann-Hidle 2016). It is for such reasons that traditional libraries are reconfiguring their core activities and practices in preference of the research commons mode in order to complement the contemporary learning styles and ever-changing needs of students (Darch & de Jager 2012). Such transformation-oriented trajectories and perspectives by libraries and librarians further enhance the productivity and creativity of their (postgraduate) students.

Evidently, academic libraries can no longer continue on their primordial 'business as usual' modes of service provision to their clients/users (Kaatrakoski & Lahikainen 2016). Adjusting some anachronistic library practices is critical for libraries to remain relevant in the 21st century (Matthews & Walton 2013). Since its inception in the early 1990s, the first research commons model has evolved through the agency of information technology, which is continuing to rearrange research and pedagogy as previously known and understood (Quagliaroli 2017). For instance, university teachers no longer possess the monopoly to determine the learning content and parameters for today's learners, who choose *what* they want to learn (hence, lifelong learning), *when* to learn, and *how* they want to learn (Paniagua & Simpson 2018; Boyle, Collins, Kinsey, Noonan & Pocock 2016).

The University of Iowa (1992) and the University of Southern California (1994) provided the earliest prototypes of the commons model in the United States of America (USA) (Cahir 2003). The latter authors further assert that there were about 152 converted commons spaces (in the USA), and the numbers were growing rapidly with the adoption of diverse RC derivatives for the purpose of keeping abreast of the robust and continuously evolving technological developments. Still in the USA, the University of Maryland (Soergel, Banyas & Zdravkovska 2017) and Duke University (Pierard, Schadt & Jackson 2019) conducted case studies to determine the RC phenomenon's impact on those US campuses that embraced it. In Africa, the University of Ghana undertook a similar impact assessment approach to determine the relevance of its academic library in a changing and technologically-driven teaching, learning and research ecosystem (Opoku 2013).

While the RC model has been extensively studied by international scholars, the same does not apply in South Africa, where only sparse research has been conducted

on academic libraries' transition to the RC model (Kercival 2011). Similar to approaches by some of their international counterparts, South African scholars have focused their investigations mainly on aspects such as: the theory, conceptualisation and history of the RC; user perceptions and needs; the role and place of the physical library in the 21st century; as well as the librarian's role in research (Mwaniki 2018; Raju *et al.* 2018; Daland & Walmann Hidle 2016). Given the inevitable changes in the roles of librarians, a new RC-oriented staffing model ought to be developed to address these changes. Such a progressive approach is critical for the strategic advancement of librarianship in a reconfigured knowledge management environment (Cicchetti 2015; Hart & Kleinveldt 2011).

In 2008, the academic libraries of the following South African universities formed the Research Libraries Consortium (RLC) Project on the strength of some financial backing from the Carnegie Corporation of New York: University of Cape Town (UCT), University of Kwa-Zulu Natal (UKZN), University of Witwatersrand (Wits), University of Pretoria (UP), University of Stellenbosch, Rhodes University, and University of Johannesburg (UJ): (Hart & Kleinveldt 2011; Kercival 2011; Daniels *et al.* 2010). To a greater extent, the RLC Project could be regarded as a forerunner to the shaping of the South African academic libraries' RC model. At the inception of the RLC, the University of Johannesburg library was not a full member, but actively participated in all RLC activities (Daniels *et al.* 2010). The University of South Africa (Unisa) adopted the RC model in 2009 (Unisa Council 2016).

The RLC was established against the backdrop of the South African government's concerns with the deteriorating academic research output between 1990 and 2000, which was manifested by universities struggling to produce quality researchers and research outputs in accordance with the allocated quotas (Daniels *et al.* 2010). Hence, the Department of Higher Education and Training (DHET) recommended the construction and development of learning spaces in libraries to serve as the fundamental pillar for student support, particularly for distance learners (Department of Higher Education Training 2018). Such a recommendation had the potential to place the academic library space in a strategic position different from that of the earlier dormant libraries. Herman and Butler (2019) support the recommendation on the strength of its contribution towards universities' efforts to increase student throughput and retention in a place where research methodology and academic writing were tutored and facilitated.

On the other hand, Tassone, O'Mahony, McKenna, Eppink and Wals (2018) oppose the idea of mere quantitative increases of graduation numbers at the expense of quality and integrity in knowledge creation. Through its continued endeavour to improve quality in the country's higher education system, the DHET subsequently developed national guidelines towards learner support, while the National Research Foundation (NRF) increased research funding to stimulate research activities, improvement of research output and postgraduate throughput (Walker 2009).

Most South African scholars in the library and information science (LIS) fraternity have alluded to the South African academic libraries' alignment with the governments' plans to create learning centres to support postgraduate students at every stage of their research cycle. However, it has been suggested that SA academic librarians lack subject knowledge, postgraduate qualifications and research capacity to fully support such high-level knowledge production environments, compared to their international counterparts (Raju, Raju & Johnson 2016; Crowster, de Jager & Nassimbeni 2013; Walker 2009). It is in the latter regard that the RLC was mandated not only to acquire funding for reconfiguration of the SA academic library model, but to also prepare liaison librarians for such a shift in service and resources through a two-week workshop in Mont Flair (Stellenbosch). Librarians were later sent to academic libraries in the USA to further their knowledge and understanding of the research commons model. From the researcher's perspective, the librarians' lack of the requisite skills, knowledge and postgraduate qualifications constituted justifiable grounds for the current study being undertaken, considering the magnitude of reconfiguring such a complex multi-faceted model (Barton 2018).

In its 2015 exploration of the South African universities' RC ecology, the Association of Commonwealth Universities (ACU) praised the unique collaborations taking place amongst different stakeholders in this sector, and established that the University of Pretoria (UP), the University of Johannesburg (UJ) and the University of Witwatersrand (WITS) worked collaboratively with their research offices (RO) and tech-transfer office (TTO) (Association of Commonwealth Universities 2015). In conjunction with the latter ACU observation, the researcher concurs further with the view posited by Cha and Kim (2015), that sustained research is required to investigate strategies for successful conversion to RC models in order to avoid problems arising from improper planning and

deficient implementation approaches and practices. Notwithstanding huge investments required for redesigning the physical commons, even more funding is still required for sustaining the evolving nature of these spaces (Jubb 2016; De Jager 2015; Kercival 2011). In this regard, ongoing assessment of users' needs and space usage is of vital importance in the evolution of the physical commons, which is the cornerstone of the research commons model (Association of Commonwealth Universities 2015).

1.3 Problem Statement

The process of identifying and describing a research problem is the most important step in conducting any research project (Bezuidenhout & Davis 2014). Thus, the research problem becomes inextricable from the purpose of the study. In the context of this study, the problem being investigated is fundamentally situated in the question: *How do predominantly print tradition (academic) libraries transition to complex digital service delivery environments?* (Barton 2018; Burns 2017; Cicchetti 2015). The absence of an appropriate planning process for converting the traditional library to the research commons could compromise the success of the very notion of a commons model (Burns 2017; Cicchetti 2015). In the latter regard, the research problem premises on both the deficient conceptual/ paradigmatic understanding and application (including planning processes) of the conversion from traditional academic libraries to the new research commons environment. Notwithstanding the extensive range of literature addressing the research commons phenomenon (see Section 1.2), there is sparse international and local South African literature covering the planning of the conversion (transitioning/ transformation) process (Barton 2018; Burns 2017; Cicchetti 2015).

There is also deficient understanding of the various RC elements and processes that are required in the conversion of the traditional academic library (Barton 2018). The latter author has proposed that a successful conversion process requires integration of space, staff, technology, resources and users' needs. Such a proposition is an enabling factor for library service users to cope with the transforming nature of higher education as well by providing a desirable physical space that extends its services to the virtual commons space (Barton 2018). A conversion model aligned to the afore-cited integrative processes provides for diversified resources and services that encourage collaboration among stakeholders who are linked to the institutional mission of teaching, learning and research. Initial planning is critical to the success or failure of this dynamic and complex

model, which enables academic libraries to respond proactively to technological and media literacy transitions from the erstwhile library collection-centred model to the user-centred model(Kumar & Cheddie 2014).

1.4 Purpose of the Study

The main purpose of the study was to obtain deeper understanding of the RC conversion strategies adopted by South African public university libraries, and to identify the factors that contributed or undermined a successful conversion from a traditional academic library to an RC service delivery model.

1.5 Research Objectives and Research Questions

This section defines the research objectives and research questions that were considered as suitable for addressing the identified research problem as articulated in Section 1.3 earlier. In their nature, the research objectives are specific (as opposed to the generalistic study purpose), measurable, attainable, realistic (rather than idealistic), and bound to specific timeframes(Bryman 2012). Thus, the research objectives effectively reflect an irreducible translation of the study purpose into achievable goals (Bell, Bryman & Harley 2018). Moreover, the research objectives also explain the actual or appropriate actions undertaken to address or resolve the identified research problem (Bryman 2012).

On the other hand, a research question is an explicit interrogative statement focusing on *how* the research problem will be resolved in respect of identifiable activities that are linked to the study objectives(Bryman 2012). In this regard, the research questions were developed from the research objectives themselves. Table 1.1 below is an illustration of the synergistic link between the research objectives and research questions. It is worthy mention that each research objective is linked to its corresponding research question.

Table 1.1:Representation of research objectives and research questions

Research Objectives	Research Questions
To explore strategies adopted in converting traditional academic libraries into the research commons service delivery model	What are the strategies for converting a traditional academic library into the research commons model?
To explore those changes engendered by the conversion from a traditional academic library into the research commons model	What are the changes that were engendered by converting from a traditional academic library into the research commons model?
To identify the challenges encountered when converting from the traditional academic library to the research commons model.	Which are the challenges encountered during the conversion process from the traditional academic library to the research commons model?

1.6 Significance of the Study

The significance of this research study describes its contribution to the body of knowledge in the field of library and information science (LIS) (Saunders, Lewis & Thornhill 2019). The issues and arguments raised in this study emanate from a practical situation entailed in both the research problem (i.e. deficient understanding of the RC concept) and study aim (i.e. investigation of adopted conversion strategies) (du Plooy-Cilliers 2014). In this regard, the study's epistemological significance lies in the extent of its generation and dissemination of pertinent information and knowledge relating to strategies and factors that enhance the transformation of erstwhile traditional academic libraries to IT-driven (virtual/ digital) research commons modes or environments. Accordingly, the findings of this study will add to the existing literature on the research commons phenomenon, a sparsely researched field of study in the South African higher education ecology (Daniels *et al.* 2010).

In conjunction with its recommendations, the study will contribute further as a policy development and implementation reference point for higher education transformation in general, and research commons studies in particular. For librarians/ managers, this study (including its methodological processes and findings) is beneficial for identifying the requisite elements in the planning and designing of commons spaces that would ensure greater productivity and meeting the needs of research commons users. Necessarily, this research-based study will inspire librarians' consciousness regarding the required elements of the commons-oriented spaces model when undertaking the task of converting their traditional academic libraries.

In the post-traditional modes of asynchronous learning and teaching (induced by globalisation and information technologies), the study is also beneficial to postgraduate students, to the extent that it highlights their indispensability as the most vital elements in the information commons equation (Bailey & Tierney 2008). Therefore, they are exposed to new interactive processes to conduct and complete their research studies.

1.7 Scope and Limitations of the Study

The scope of a study demarcates what is to be included and excluded, based on the context (Saunders *et al.* 2019). The scope premises on the range or 'reach' of the study in terms of its conceptual, methodological and geographic parameters or boundaries (Saunders *et al.* 2019; Babbie & Mouton 2010). Whereas the scope addresses the actual areas or aspects within the 'reach' of the study, the limitations relate to the constraining factors that confined or restricted the study's 'reach' only to specific conceptual, methodological and other considerations (Maree 2016).

1.7.1 Scope

At the conceptual level, the scope of the study focuses specifically on the phenomenon of 'research commons', its associated elements (i.e. physical, virtual and cultural), as well as strategies and planning mechanisms that enable the transition processes from traditional academic libraries to complex virtual learning and knowledge/ information sharing spaces. The conceptual scope also focused on the disabling factors and challenges encountered by librarians who work in the South African research commons, and not in the traditional academic mode of libraries that have not embarked on the conversion process.

In its methodological scope, the study incorporated both qualitative and quantitative approaches for the purpose of maximising/ expanding its reach to participants who would normally not be accessible by only a single data collection method (Wahyuni 2019; Saunders 2015). In its geographic focus, this study is limited to public academic libraries in Gauteng Province only. These were libraries that embarked on the transformation process to convert their functions and processes from the traditional to the research commons mode. The excluded library categories (see sub-section 1.7.2 below) could possibly render the findings of the study non-generalisable.

There are seven universities in Gauteng Province, which comprise a variety of technology, medical and distance education universities. However, the study focused only on the four universities that already established the RC model on their campuses. These four institutions are historically advantaged universities (HAUs) which were established according to the erstwhile apartheid government's racial segregation ideology prior to 1994. As forerunners to the adoption of the South African research commons model, it is to be expected that the historically advantaged universities (HAUs) would take the lead in this regard ahead of the historical disadvantage universities (HDUs) as a result of the historically disproportionate funding models (Dowson 2016a; Walker 2009a). There may be potential differences in the respective RC building and application characteristics, influenced by the teaching and research cultures (e.g. distance or dual/ mixed teaching and learning modes) particularly at postgraduate level (Acton 2018; Saunders 2015).

1.7.2 Limitations

Due to the time and financial allocations for this Master's research project, only four academic libraries in Gauteng Province participated in this study. Therefore, public libraries, school libraries, special libraries, national libraries, public libraries, and academic libraries in other provinces which have adopted the RC model were excluded. All libraries of privately owned universities across Gauteng were also excluded. All excluded categories of libraries could have a negative impact on the overall study findings and their generalisability. The researcher mediated this possibility by ensuring that the participating universities were not monolithic, but representative of different teaching and research cultures.

1.8 Definition of Key Terms

In this section, the key terms and concepts are defined to establish uniformity of usage in this study, such that either contextual, connotative or denotative misunderstanding is prevented. The implication is that key terms may have different meanings based on their theoretical application and meanings in specific situations and circumstances (Bezuidenhout 2014). The key terms or concepts defined below are thematically linked to the core aspects of the research topic, namely, the research commons phenomenon and its strategic conversion processes.

1.8.1 Collaboration

The term relates to durable partnership-based relationships that brings previously separate organisations, departments or individuals into a new structure, based on commitment to a commonly defined mission or planning effort, with each entity contributing its own resources to a jointly held pool of resources and sharing product or services (Perrault *et al.* 2011). For this study, collaboration is viewed as a combination of different units to provide an integrated seamless service.

1.8.2 Cooperation

Cooperation premises on mutual assistance between parties, intended for mutual benefit and outcomes (Perrault *et al.* 2011). In this study, cooperation relates to the nature of the assistance between libraries to design or develop mechanisms for the institutionalisation of the RC model.

1.8.3 Information Commons (IC)

A model for delivery of information services that offer students integrated access to digital multimedia and print information resources and services (Bailey & Tierney 2008). Such services enable students to conduct their research studies and write their reports and papers in a single work space.

1.8.4 Learning Commons (LC)

Spaces within academic libraries designed to provide library and digital multimedia resources, as well as various academic services to support students and their learning needs (Blummer & Kenton 2017).

1.8.5 Library Stakeholders

Those individuals or organisations whose interests, participation and values directly translate into the furtherance of the vision and mission of the library (Wand 2011). In this study, library stakeholders include students as primary users, library staff, academic staff, institutional management, the DHET as contributors of funds and policy directives relating to public academic libraries, as well as LIASA and other relevant organisations.

1.8.6 Research Commons (RC)

Spaces within libraries, designed for laboratory-like productivity and knowledge creation activity in collaboration with others engaged in a similar enterprise in a digitally supported environment (Blummer & Kenton 2017; Choy & Goh 2016; Johnson 2016; Dowson 2016a; Seal 2015). Furthermore, the RC model does not only focus on digital

scholarship, but also fosters the core values and ethos of interdisciplinary openness and collaboration, while focusing on new modes of knowledge production and creation (Association of Commonwealth Universities 2015; Lewis, Spiro, Wang & Cawthorne 2015; Ray & Macy 2014).

1.8.7 Student Support

Academic strategies, processes and systems that are often designed to provide additional assistance and guidance to students individually or in groups electronically or through face-to-face contact (Tait 1996). The DHET (2018) categorised the support system in four broad categories, namely: academic support, technology support, counselling support and administrative support.

1.8.8 Strategy

Strategy means, a method or plan chosen to bring about a desired future, such as the achievement of a goal or solution to a problem. The art and science of planning and marshalling resources for their most efficient and effective use (online dictionary).

1.9 Theoretical Framework

The researcher's protracted search, consultation and review of the pertinent literature from multiple scholarship perspectives enabled the researcher's identification and development of a theoretical framework that is consistent with the resolution of the research question and accomplishment of the research objectives (Bezuidenhout 2014; Aneshensel 2013). In essence, a theoretical framework emanates from a set of ideologies (philosophical or scientific assumptions, paradigms, principles or perspectives) that are linked together to guide the logic, structure and interconnectedness between concepts or abstract ideas that support or are linked to a particular theory (Leede & Ormrod 2013). Importantly, a theoretical framework is particularly helpful for enabling a conceptualisation of the adopted theory or concepts in respect of the main themes of the study and their relevance to the investigated phenomenon (Streubert-Speziale & Carpenter 2011). In addition, the theoretical framework presents different and thematically connected ideas in order to explain the predictability or prevalence of a phenomenon (e.g. research commons), which enables the researcher to understand and explain why the research problem or phenomenon exists; and to challenge its existing knowledge structures and dynamics (Schroeder & Hollister 2014; Kent & Myrick 2003).

The specific purpose of this study, the adopted theoretical framework positsthe researchcommonsphenomenonand itsrelatedaspects through Cunningham’s and Tabur’s (2012)hierarchy of learning space attributes.The latter posit that desirable library spaces are characterised by access and linkages, uses and activities; as well as sociability, comfort and image. These attributes are used as frame of reference to find solutionsand strategies to the identified problem of lack of planning for successful conversion processes from traditional to the commons model. Hence, when converting the traditional library to RC, these physical appearances should be the guiding principles that reflect the new dawn and scalability of the model.

1.10 Research Methodology

The research methodology addressesthe plans and procedures adopted in conjunction with the data collection instruments and analytic processesas products of both the research problem and attendant study aim and objectives(Creswell &Creswell 2018). The research methodology furtherreveals the researchers’ philosophical assumptions in respect ofthemergered*quantitative and qualitative*research design approaches, whilealso prescribing appropriate sampling methods; data collection tools and data analysis (Creswell& Creswell 2018;Saunders 2015). A more detailed discussion of the research methodology is provided in Chapter Three of this study.

1.11 Ethical Considerations

Particularly in the Social Sciences, researchersare obliged to be more attentive to ethical and moral issues as they directly affect participants’ identities, confidential information and human dignity (Babbie 2016).Hence, precautionary measuresarealways necessary to protect people’s feelings and respect their concerns. Evidently, such measures relate to ethical issues that pertain to the researcher alone, while other ethical considerations apply to the researcher’s obligation to her participants.In terms of the researcher-specific ethical protocols, the study only commenced after the granting of ethical clearance/approval by UNISA’s Research Ethics Committee (UREC), after formal undertaking by the researcher to adhere to all the research-related codes of conduct, rules and regulations stipulated by UREC. Subsequent to the granting of ethical clearance (see Appendix A), the researcher then wrote letters of request to conduct the study at the various academic libraries selected for participation in the study (see Appendix B and Appendix C).

Prior to the actual involvement of the selected academic libraries, the researcher prepared a participant information sheet and consent form (see Appendix D and Appendix E), both of which are reflective of the researcher's respect for the participants' human dignity (Almalki 2016; Kendall & Halliday 2014). Such respect for human is a writ large emphasis of the rights to which the participants are entitled both as human beings and as providers of empirical evidence to which the researcher could not have been privy without the involvement of those who actually experience the investigated phenomenon in a direct manner.

In tandem with the UREC's requirements for postgraduate research, the participants' information sheet indicates the researcher's participant-centric obligations (different from the researcher-centric obligations referred to earlier). Foremost in the information sheet, is the researcher's full disclosure of the purpose and value of the study, as well as the expected form of participants' involvement in both the (qualitative) interviews (see Appendix F) and filling-in of the (quantitative) RC assessment questionnaire (see Appendix G). The full disclosure ensured, among others, that participants' fears were allayed concerning any perceptions of the study as possibly a spurious activity with the potential to antagonise the participants (Epstein & Carlin 2012). Since the participants are autonomous adults capable of making their own decisions, a full disclosure of the study was also a mechanism to generate enthusiasm and uncoerced involvement. They were also informed that the study entailed minimal risks to their safety, privacy and confidentiality; and that they could withdraw any reprisal against them at any time should they feel they were not accorded due respect.

It is noteworthy that the information sheet also recognises the participants' fair and equal treatment (non-discrimination), which is an indispensable requirement, considering the disparate academic cultures of the South African higher education landscape prior to its reconfiguration with the 2004 institutional mergers (Ray & Marcy 2014). Non-exploitation of participants was applied by ensuring that they were not subjected to questions that were not part of the interview schedule. It was also made clear that they were entitled to legal recourse for the researcher's infringement on any of their rights.

As a measure of ensuring the privacy, anonymity and confidentiality of the participants' contribution to the study, they were referred to by pseudonyms or monikers together with their academic institutions (Abutabenjeh & Jaradat 2018; Babbie 2016). Accordingly, any personal information will be used strictly for academic purposes only, and no third parties will be privy to the such information without proper authorisation to that effect (University of South Africa 2016a). All of the above-stated researcher- and participant-centric ethical issues and considerations were adopted with the view to infusing a degree of scientifically acceptable standards to the entire research process and its credibility of its consequent findings (Babbie 2016; Silverman 2010).

1.12 Structure of the Dissertation

The structure of the dissertation into the following chapters is meant to allocate both a logical concatenation of the critical units of analysis, as well as a thematically cohesive argumentation process (Al-Sulaiti, Baker, Bryman, Baker, Ballington, Bilkey, Nes & Bryman 2010).

Chapter One: Introduction and Background

This chapter introduces the study in respect of the background of the study; the problem statement; the research purpose, objectives and questions; significance of the study; scope and limitations of the study; definition of key terms; the theoretical framework; overview of the research methodology; and ethical considerations.

Chapter Two: Literature Review

The chapter highlights the RC service delivery model and its physical, virtual and cultural common elements as foundational to the success of any academic library's RC conversion. The chapter also presents a genesis of academic libraries and the planning process of the commons model and its variants, namely: the information commons (IC), learning commons (LC), and research commons (RC). The chapter further discusses its conceptual framework and its relevance/applicability to the study.

Chapter Three: Research Methodology

This chapter describes the research methodology applied in the study, which includes the research paradigm and approach; the population and sampling dynamics; the data collection and analysis methods; as well as measures of the research study's trustworthiness.

Chapter Four: Data Presentation and Interpretation/ Analysis

The presentation and analysis of the collected qualitative and quantitative data and consequent results are allocated detailed discussion in this chapter. The data accrues from both the participants' narrated (verbatim) statements in response to the interviews, non-participant observations, and the assessment questionnaires. The chapter further presents the unique characteristics of the participants, the RC users, and the participating academic institutions. Most of the quantitative data in particular, is presented in the form of tables and graphs in order to generate readers' visual 'appeal' and simplify the researcher's explorative, descriptive and analytic approaches.

Chapter Five: Discussion of Main Findings, Conclusions and Recommendations

This chapter premises largely on the main conclusions and recommendations accruing from the research findings, which provided the ultimate evidentiary framework or base of the qualitatively and quantitatively obtained information.

1.13 Summary

This introductory chapter provided an overview of the research process as a whole. The chapter introduced the research problem, purpose, questions, significance, and scope of the study. Moreover, the definition of key terms and concepts, theoretical approach, research methodology, ethical considerations and organisation of chapters were also presented in the study. To a larger extent, this chapter could be construed as highlighting an integrative overview and insights of the study's theoretical and practical (fieldwork-based) applicability. It is worth mentioning that all the summarised critical units of analysis or variables above are presented and discussed in different degrees of detail in the following chapters, with Chapter Two focusing entirely on the reviewed literature.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a review of the range of literature that researcher consulted for purposes of this study. Loertscher and Koechlin (2014) posit that literature review is essentially a systematic and logical exposition of related data sources that purposefully yield a coherent framework for a study and presents it according to a particular perspective of enquiry or intellectual paradigm and context within related fields of knowledge. Moreover, the review of literature brings forth related studies that either confirm or refute the arguments propounded by the researcher and participants as providers of empirical evidence (Kumar & Cheddie 2014). In addition, the literature search strategy informed the logic according to which multiple scholarship perspectives were sought and derived from a diverse range of sources that included search engines and databases; academic books from reputable libraries; published and unpublished theses; peer reviewed journal articles; conference proceedings; legal and regulatory instruments and official government policy documents.

In this study, the systematic search, review, and analysis of the identified literature from multiple sources and perspectives enabled the researcher's broad understanding on a range of relevant topics, including the history of the academic library; planning the RC conversion process; types of the commons model; fundamentals of the research commons; the theoretical framework underpinning the study; the clientele of the research commons; as well as postgraduate students' needs. It is on the basis of this broad understanding concerning these pertinent topics that the researcher was able to identify gaps that exist in the research commons literature (Raju *et al.* 2018).

2.2 A Brief Background of Academic Libraries

Libraries owe their origin to the ancient practise of preserving documents, the earliest of which were in the form of clay tablets dating back to 2600 BC (Karwasiński 2012). Since then, library collections changed in shape and format, from clay tablets to papyrus and then to the production of books that extended to the contemporary electronic publishing (Karwasiński 2012). During the 1960s, libraries experienced the microfilm, microfiche and compact disks formats as part of their collections. The card catalogue was used to search and locate books from available collections in the library shelves. The explosion in knowledge concomitantly resulted in exponential increases of printed

material, which posed space dilemmas for libraries (Young & Kelly 2018). By the early 1980s the advent of the Internet introduced a system of database subscriptions for libraries. Subsequently, the introduction of the online public access catalogue (OPAC) became useful for locating both print and electronic library collections, as opposed to the card catalogue that could only provide location of the material to its respective library. Furthermore, the world catalogue was developed by the online computer library centre (OCLC) to connect users to the world's libraries, which emphasised the distance between libraries and citations (Adamou *et al.* 2017).

The library's role and services were completely transformed by the introduction of the internet, which made such services more easily accessible than in the earlier years. Such easy access elevated the status of the library as one of the many information service providers in the world. It is for that reason that the library ceased to be the only information provider (Raju *et al.* 2018). Search engines increased accessibility of information outside of the libraries. The introduction of the Internet also had its own challenges, such as information explosion, loading of information to different open platforms, such as Amazon, Google, institutional repositories (IR), datasets repositories, Wikipedia, web 2.0 applications and online libraries such as Questia. Libraries also adopted self-services through radio-frequency identification (RFID), making it necessary for libraries to transform. In this regard, academic libraries became leaders in adopting the commons model, and capitalised in providing services such as space usage, free WiFi, e-resources and information in a commons space. These changes were necessary for assisting students to link the application of technology to learning and research. These developments compelled libraries to cope with the demands of the digital age, which also pose tremendous challenges on the budget. These challenges extended to the librarians' readiness to address new roles and formation of partnerships with other academic departments. The implication is that, in the event that the latter factors are not well vectored, they may deter and stagnate the growth of the commons model (Cicchetti 2015).

As libraries progressed, their scope of services expanded to different purposes and clientele, such as public, private, special, school, national and academic libraries (Scott 2009). The academic libraries, also known as university libraries, serve their parent institutions' mission of teaching, learning and research. Figure 2.1

below illustrates the evolution of libraries over the years as they strive to match their university missions, and to keep abreast of information technology and users' needs. Therefore, planning the conversion of the traditional library to adapt throughout the history of libraries has always been a transformative strategy, which could either make or break the growth of the research commons (Cha & Kim 2015).

While Figure 2.1 below illustrates trends in university library spaces, it should also be noted that the trends also prompted academic libraries to alter their library rules, regulations and policies regarding collection development, eating, drinking, noise, ergonomics, learning styles and operating hours, as well as budget allocation (Karasic 2016).

Figure 2.1: Trends in university library space

Adapted from Childs, Matthews and Walton (2013:3)

Planning still remains a critical aspect of the conversion process, particularly when converting the traditional print library into the commons service delivery model (Ojennus & Watts 2017). In view of conversion imperatives, the commons model disregards all particularities associated with the traditional academic library, from library-centeredness and collection-centeredness to user-centeredness. This metamorphological development contributed to the change in library policies and reconfigured services to encompass research life-cycles compared to information life-cycles that repurposed the physical place to a virtual space operating around the clock throughout day and night.

Scholars such as Dillon, Greenop and Hills (2016), Cunningham and Tabur (2012), McLaughlin and Faulkner (2012), McDonald (2007), and Kent and Myrick (2003) argue for attributes that confirm the enduring relevance of an approach to identify some basic principles and generic qualities that inform the planning of the conversion. These attributes are used as guidelines for converting the traditional academic libraries into functional virtual, physical, and cultural spaces that support the radical transformation of higher education space design and societal orientation induced by technology. Demonstrating the impact of good library design on learning, teaching and research remains an elusive challenge (Cunningham & Tabur 2012). However, it is reassuring for all those involved in the planning process to note that successful new libraries continue to stimulate better use of traditional, new and virtual services (Khoo, Rozaklis, Hall & Kusunoki 2016).

These attributes are to be used as a reference frame that ensures the prevalence of each fundamental principle of the commons service delivery model. Figure 2.2 below is an illustration of the commons model in the early 1990s from the perspective of Beagle (2011). The illustration highlights the physical, virtual and cultural commons as core constituents of such a model. The University of Iowa and the University of Southern Carolina in the United States provided the earliest prototypes for converting the traditional academic library (Beagle 1999). Later, Bennett (2009) supported Beagle's (1999) earlier RC prototype conversion model and commended the commons model as the future of libraries. These scholars further cautioned against undermining the core fundamentals of the commons' service delivery model. The model can only work as envisioned on the basis of institutionalising its fundamentals (Beagle 2010). Figure 2.2 below exemplifies the RC model and its core constituent elements as envisioned by Beagle (2011).

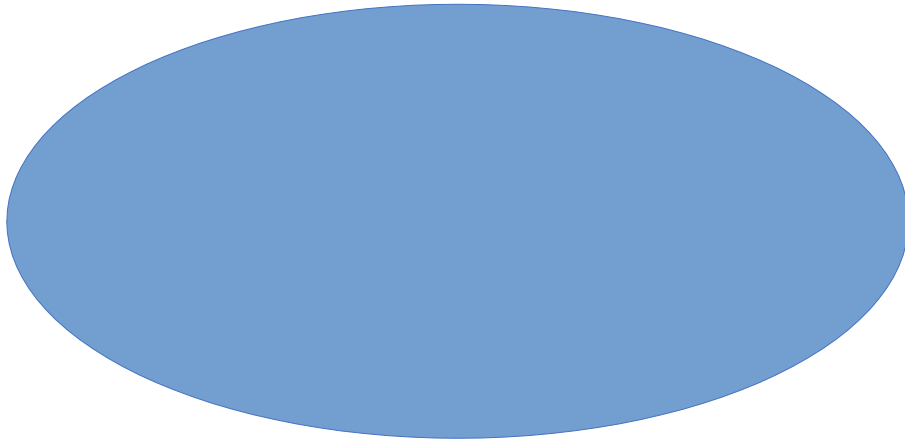


Figure 2.2: Three-domain diagram of the commons model

Adapted from Beagle (2012:512)

Even though the architectural designs of most academic libraries have remained fundamentally unchanged, transformation inside the libraries is more of an interior design reconfiguration (ergonomics) linked to the spatial and furniture arrangements, as well as services that will function well with new technologies to support the users' needs. In other universities, both the old and new spaces function concurrently, while others have moved their collections to different locations or central buildings separate from the commons space (Chan & Spodick 2014a). Therefore, it is imperative to involve the library leadership and stakeholders in order to infuse an environment in which resources and skills are shared automatically and naturally, which enhances the success of the planning. Stakeholders should include, but not be limited to university leadership, librarians, IT specialists, faculty members, architects, the research office and students in order to plan effectively for such a collaborative space. Creating new structures to achieve a shared vision and services is costly (Ferria *et al.* 2017).

Therefore, it is important for librarians to critically keep sight of emerging technologies and plan ahead of time for financial considerations, maintenance purposes and upgrading of equipment (Ferria *et al.* 2017). Additionally, the envisioned space should conform to ergonomically acceptable health and safety standards, be secure, and adopt green energy practices that cares for and protects natural resources such that the creativity and energy of the users is brought to the fore (McDonald 2007).

Adaptability is viewed as the critical attribute to the transformation, in terms of which a flexible space will quickly adjust easily and quickly to changes. Such adjustment will reduce the space and costs whenever a new wave of technologies reaches the library's sphere of functioning (Closet-Crane 2011). The Internet has played a major role in today's academic spaces that are filled with computers, hardware and software; unlike traditional libraries that were characterised by small, fixed study desks and bookshelves (Acton 2018). In this mould of library functioning, users brought their own devices (BYOD), thus, providing multiple power points (Hur, Shen, Kale & Cullen 2015). Section 2.4 and Section 2.5 provide various aspects and attributes of good learning spaces.

2.3 Planning Processes of the Research Commons Model

Planning could be derailed by incorrect priorities (Bennett 2015). The traditional planning and construction of library buildings has always been dominated by librarians (Choy & Goh 2016). Their planning was primarily collection-centred, and library-centred. The architecture of most library buildings resembled that of many historical monuments, with little sunlight and few windows. However, the library allowed open and easy, accessible circulation, reference or information service desks, exhibition points and a huge open entrance. Informative signs such as 'silent' and 'no eating' across the library is an indication of the solitary nature of using library materials, the importance of securing library collections, and the value of the library as an information repository. The biggest proportion of the space was allocated to print materials (Choy & Goh 2016). Therefore, converting the traditional academic library into research commons cannot be approached in similar anachronistic views and perspectives that do not reflect the vision and the mission of the parent academic institution's creation of a 'new creature' that embraces technology as an indispensable part of research and postgraduate students' needs and learning styles (Darch & de Jager 2012).

South African university libraries have adopted the research commons service delivery model as a means to increase postgraduates' research outputs and throughputs as envisaged through DHET and NRF subsidisation and funding. Therefore, success in planning for such a transition is incumbent on librarians' realisation of the huge potential of the commons model, compared to what the traditional library can offer (Choy & Goh 2016). It is for this reason that librarians should first canvass for the 'buy-in' of stakeholders, whose involvement in the planning process will assist in brain-storming the sharing of skills and resources required to create an easily accessible and user-

friendly commons model. Otherwise, librarians will find themselves in a 'planning trap' or 'planning tragedy', in terms of which planning does not translate into implementable outcomes due to librarians' ill-conceived planning processes (Bennett 2015). The opposite of a 'planning' trap is observable in the initial planning stages that involve careful needs assessments for research activities and students learning styles, and unambiguous communication strategies relating to various stakeholder roles. Therefore, properly conducted needs assessments and analyses enhance the planning of suitable commons models complemented by relevant and innovative service; as well as resources and the type of technology necessary for the projected space (Oblinger & Lippincott 2006).

Figure 2.3 below depicts the three cyclic stages of the learning commons model, all of which are emblematic of careful conversion planning outcomes (Barton 2018).

Phase 1	Phase 2	Phase 3
Essential conditions	Physical and virtual spaces	Tragedy of commons

Figure 2.3: Recommended implementation phases of the LC model
Source: Barton (2018)

Figure 2.3 above also shows the critical LC implementation phases: creating the essential conditions, the physical and virtual spaces implementation; as well as the 'tragedy of commons' phase. The latter refers to future strategies implemented to prevent the collapse of a learning commons (Beagle 2012). All elements of the RC reflected in Figure 2.3 simultaneously reflect an evolving matrix of the hierarchy of learning attributes (Barton 2018).

2.4 Contextualising the Commons Models

The term, 'commons' was first used by academic libraries to imply contemporary hybrid library spaces, and was coupled with terms such as 'information' or 'learning' to define the nature, scope and clientele intended for such spaces (Bonnand & Donahue 2010). The commons, then, is a neutral environment with neutral resources and services that are socially connected for easy public access and use (Bailey & Tierney 2006). Meanwhile, Beagle (2010) uses the notion of 'evolving towards a learning

commons matrix' to differentiate between the commons services, based on whether or not activities, facilities and resources are library-bound and occur during the commons model's operation within the library terms of reference - to which Beagle (2010:10) refers as "isolated change". Figure: 2.4 below reflects the LC evolving matrix, as adopted by Beagle (2010) cited in Cowgill and Wess (2006:5).

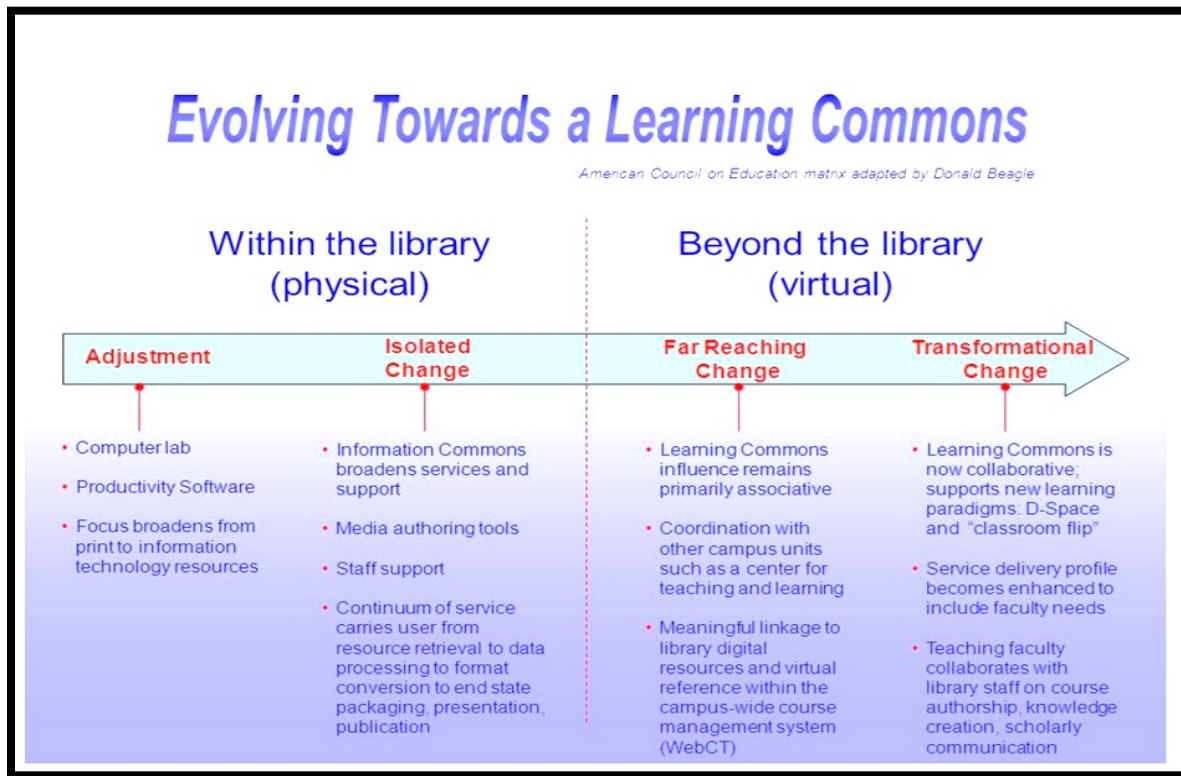


Figure 2.4: Evolving towards a learning commons matrix

Source: Beagle (2010:1-2)

In terms of Figure 2.4 above, the process of evolving towards a learning commons model focuses fundamentally on the physical aspects (within the library) and the virtual (occurring beyond the library) (Beagle 2010). Four principal matrix factors influence the change/ conversion process, namely: adjustment and isolated change, and far reaching and transformational change. The 'adjustment' and 'isolated change' factors occur within the physical commons space, while 'far-reaching change' and 'transformational change' refer to the commons-stakeholder collaboration beyond the library/university boundaries (Beagle 2010). This study agrees with the matrix depicted in Figure 2.4 above, as it clearly distinguishes the library spaces in terms of their extent of support of both the information and research lifecycle activities within and/or outside these spaces.

2.4.1 Information Commons (IC)

Information commons (IC) is an information service delivery model according to which integrated access to a range of electronic and print information resources, and services are offered to students (Bailey & Tierney 2008). The history of the information commons dates back to the early 1990s (see Figure 2.1, p. 22) when these spaces were developed to accommodate the evolving learning styles and needs of the 21st century student (Harris 2016; Turner, Welch & Reynolds 2013; Bailey & Tierney 2008). For purposes that cohere with both the research topic and study objectives, the term 'research space' (RS) is regarded as assuming the same definition as 'information commons'. The information commons is advantageous for providing students with the opportunity to conduct research and write papers in a single workstation.

Information commons are also distinguishable by a multi-purposed open-floor plan that accommodates different projects and group activities; movable furniture and a relaxed atmosphere with abundant natural light; as well as colourful paintings that create an informal, but creative ambience to stimulate students while also fitting into their techno-savvy ways of working (De Jager 2015). In addition, these spaces are packed with personal computers (PCs), laptops and other technological devices. However, there is no staff to serve the undergraduate students, except in the case of a lecturer hosting some of the projects in the IC.

2.4.2 Learning Commons (LCs)

Learning commons relates to the changing technology that continues to affect students' needs, learning ability, and the impact that the IC has on academic library gate counts and resource usage (Blummer & Kenton 2017). In the early 2000s, universities were encouraged to transition into learning commons based on the increasing library gate counts and resource usage (see Figure 2.1, p. 22). Both undergraduate and postgraduate students are adequately catered for in the LC model, which is characterised by redesigned floor plans within the existing library building and state-of-the-art collaborative high-tech spaces enabling different library departments to serve students in a single-service-point mode; that is, a seamless or continuous model of library service delivery model.

In the learning commons model, the library has been repositioned from a support system to a collaborative partner with other campus stakeholders (Harris 2016; Closet-Crane 2011). The LC model has been popularised by its architectural and spatial designs that

accommodated students' learning activities (Troll 2002). The highlight of this model has been the communal aspect, which has enhanced student experiences of campus life (Gayton 2008). In contact universities, classrooms have extended their roles to the physical learning spaces (LC) while the digital platforms have enhanced learning activities through the virtual environment, which is also suitable for distance learners (Bonnard & Donahue 2010). Additionally, students are able to learn together in groups that facilitates scaffolding learning methods in terms of which students learn from each other. In this regard, knowledgeable students informally teach students who are less knowledgeable (Cox 2018). In universities such as the University of North Georgia, knowledge sharing was promoted through brainstorming, gaming and connective spaces; providing PC workstations; as well as writing and maths tutoring, which was made possible by the development of virtual learning environments such as GitHub (Ray 2014).

2.4.3 Research Commons (RC)

The learning commons model transitioned to the research commons in the mid-2000s (see Figure 2.1, p. 22) (de Jager 2010). When describing the research commons service delivery model, it is imperative to highlight the evolving nature of the commons model because of its approach to user-centredness, which engenders continuous assessment of the user's needs and evaluation of library space, services, resources and staffing models to complement new roles (Ray & Marcy 2014). The assessment methods enable individual university RC models to develop concurrently with their institutional missions and accomplish the task of meeting their students' needs (Ray & Macy 2014).

In essence, the research commons refers to the development or creation of a culture of knowledge generation and publishing of new scholarship with the use of computational or digital techniques (Dowson 2016a). However, other scholars propose that RC does not only focus on digital scholarship, but also encompasses some core values and ethos, interdisciplinarity and new modes of collaboratively generated knowledge (Lewis et al. 2015; Association of Commonwealth Universities 2015; Ray & Macy 2014a). Meanwhile, Raju and Schoombee (2014), view the research commons as a propellant of innovative and new service delivery methods.

The foregoing definitions and perspectives reflect a common understanding and agreement among scholars regarding the research commons phenomenon. Firstly, RC is identified as a *place* in the library that provides diverse spaces in a central location to accommodate postgraduate students' needs (De Jager 2015; Watkins & Kuglitsch 2015; Bonnand & Donahue 2010; Colvin 2010). The RC is also positioned to support these students through the entire research life-cycle in order to improve the university's throughputs and research outputs (Dowson 2016b; Ray & Macy 2014; Crowster *et al.* 2013). These spaces are intended to accommodate the varied demographics, technologies and changing needs of the postgraduate students (Unisa Council 2016; Matthews & Walton 2013).

The *physical* aspect of the *commons* describes sections or floor space within (or separate from) the library designed as a workspace and organised around service delivery and technology in a digitally integrated environment (Bailey & Tierney 2008). The RC, also referred to as the '*library as a place*', similar to its IC and LC prototypes, is refurbished to accommodate collaborated information, learning, research and related activities; thereby transforming the traditional library from being collection-centred to user-centred space that should be well planned to carefully link all its multi-layered facets. Accordingly, Bailey and Tierney (2008) agree with Beagle (2010), in that emphasis is placed on the place as built for people, and **not** for books. The purpose of such a place is to develop students by incorporating their physical and virtual choices (Childs, Matthews & Walton 2013).

Secondly, RC definitions are largely determined by research activities occurring in that space. Hence, the provision of services in this space should prioritise postgraduate students' needs (ACU 2015). The effective evolution of the commons service delivery model premises fundamentally on its conceptualisation by librarians (Gould 2011). Some universities' commons models still remain within the library boundaries, while others develop partnerships beyond the universities' academic and administrative departments (Beagle 2011).

It is clear that the RC model incorporates a continuum of contemporary spaces and services that are facilitated within, and/or beyond the library scope (de Jager 2015; Darch & de Jager 2012; Beagle & College 2011). According to the latter scholars, any deviation from the continuum of contemporary spaces and services is categorised as a

computer lab or information commons. Such deviations may occur by assuming that all librarians fully know and understand the reconfiguration concept of libraries into spaces or centres that seamlessly enhance research and publishing in a highly digital and collaborative environment, in addition to facilitating provision of information, training and services (Turner, Welch & Reynolds 2013).

2.5 Fundamentals of the Research Commons

This study sought to obtain understanding of strategies that are required to convert traditional academic libraries into the research commons mould. The reviewed literature has prominently highlighted that the physical commons (PC), virtual commons (VC) and the cultural commons (CC) constitute the most fundamental aspects of the research commons architecture. Accordingly, the study views an exploration of the RC's fundamentals as facilitating a cogent understanding of these strategies. The RC is at the heart of new knowledge creation, analysis and creativity within the university environment and its academic libraries, which have a long history of user-centred spaces (de Jager 2015; Peterson 2013). These all-encompassing, accessible and flexible spaces have been established to keep the academic libraries relevant and to support their clients' needs in respect of collaborative activities such as productive discussions (Andrews, Downs, Morris-Knowler, Pacion & Wright 2016)

To some greater extent, the libraries then become a second home to their users. Since Oldenburg's (1999) work, scholars such as de Jager (2015), Childs, Matthews and Walton (2013), Gould (2011) and Steelcase (2009) have debated the notion of 'the library as a third place'. There are those who foresee the library as a place gaining momentum; those who support virtual presence; and those who see the library facilities becoming more of shared facilities.

By virtue of their levels of study, most postgraduate students are studying part-time which makes them distance learners whose courses have been adjusted to suite their personal, family and work-related circumstances. In this regard, open distance education no longer becomes a space for distance institutions only (University of South Africa 2016b). Even contact universities have established virtual commons as an aspect of the commons model, which is an ideal service delivery approach for all institutions of higher learning. Previously, open distance learning institutions provided their services by mail. Lately, they provided online services to allow learners access beyond time and space

limitations. Interestingly, the DHET is encouraging institutions of higher learning to provide state-of-the-art space to distance learning students (DHET 2018). Since part-time or distance learners cannot be ignored, altering facilities to cater for their needs is as necessary to full-time learners, and vice versa (Loertscher & Koechlin 2014).

Library facilities are reconfigured to accommodate the characteristics of *the third places* previously debated by de Jager (2015), Childset *et al.* (2013), Gould (2011) and Pennington (2016). Similarly, scholars such as Andrews *et al.* (2016) and Oliveira (2016) argued for the use of different terminology to emphasise the radical changes that have occurred in traditional libraries. On the other hand, Weiner *et al.* (2010) contend that transforming the library facilities has taken a complete turn from what they used to be, and have embraced the *social* aspect of learning. It is the social dimension that has further enhanced these as dynamic spaces that stimulate and attract student's creativity (James 2013).

The principles of user-centred design are fundamental to the commons model (Corrall 2018). These spaces are characterised by contemporary, comfortable furniture accommodating individual workstations and studying in groups; modular furnishing allowing users' customisation of the environment according to their needs; wireless network access and electrical outlets; multimedia laboratories; and cafés providing a relaxed atmosphere, food and drinks (Chan & Spodick 2014).

In the reconfigured commons model, it is no longer practical for librarians to service the reference desks by themselves, because students not only require print facilities and inter-library loans only, but other specialised research services as well (MacWhinnie 2003; Jaguszewski & Williams 2013). However, postgraduates still need the space for publishing, preserving and archiving their research outputs and to access IT services (ACU 2015; Jaguszewski & Williams, 2013). These spaces have brought different services in one place (one-stop-shop) for students to work collaboratively, effectively and efficiently, because computer support, writing assistance, data management and more are located in one place. This is unlike in the past, when students would be sent from one department to another for different services (Seal 2015b).

The fact that the RC is built for students, implies that features should be adjusted continuously by using the hierarchy of learning space attributes as highlighted in the

ensuing Section 2.6 (Theoretical Framework). Hence, new user-centred library design trends should be closely monitored to track changing demographics and the need for space, services and resource adjustments timeously (Brown *et al.* 2018; Trans 2018). Brown (2006), as well as Brown, Alvey, Danilova, Morgan and Thomas (2018). Below is the list of characteristics of the RC.

2.5.1 Physical Commons

From the study's perspective, it is important to understand how the existing literature has portrayed the RC in its context of *place*. Scholars such as Kim (2016), James (2013) and Beagle (2010) concur that the RC seeks to modernise the library as a vibrant place that students want to use at all times because it fits and accommodates their learning styles and needs. Jaguszewski and Williams (2013) use the term 'reconceived', instead of 'redesign', whereas Beagle (2011) and Daniels *et al.* (2010) use 'reconfigured' and/or 'redesigned' respectively to emphasise the physical (or place) aspect of the library's purpose of existence and functioning. Notwithstanding the nomenclature employed, emphasis is placed on the repurposing of the academic library in order to improve its services. The implication is that, unstructured planning may render the model as another computer laboratory and/or an extension of the reference desk/information desk (Purongo 2014; Keating & Gabb 2008:).

The current library spaces qualify to be called '*third places*' away from work and home (de Jager 2015; Saroja & Minhaj 2015; Peterson *et al.* 2013). Gee (2017) supports the 'third places' perspective, emphasising that the research commons is designed for the *person* in mind, and not for the library books. The space for the movement within the RC is still debated, as university libraries are repositioning themselves in the digital age amidst extant fiscal constraints. The Cafeterias or coffee bars within these spaces are becoming standard features as they capture a homely ambiance (Childs *et al.* 2013; Steelcase 2009). As such, postgraduates can socialise, relax and work at the same time while stimulated and reinvigorated, compared to the moods and environment at home, classroom and/or workplace.

At an Open Distance Learning (ODL) university, amenities focus on the staff spaces. For instance, the canteen, post office and banking facilities are mostly suitable for staff breaks and needs as they operate at certain times only, in which case the students or library clients are not adequately considered. The DHET (2018) argues that distance learners are in desperate need of such learning spaces more than ever in the digital

economy, since most of them come from disadvantaged economies, and their educational background need a well organised educational support system. Accordingly, the support system should put emphasis on technology, academics, administration and counselling, while the learning centres should be placed in the libraries (DHET 2018).

Through the physical commons, librarians should be able to identify user behaviour and needs in order that more efforts are expended to establish the virtual and cultural commons (UNISA 2016). The latter also supports Bennett's (2015) contention that librarians should be mindful of *why* and *how* postgraduates choose to use these facilities. Research commons is user-centric in nature, and its layout is drawn from the postgraduates' diverse needs, which shaped the general RC characteristics (Farmer 2016). Hence, library facilities are carefully redesigned to accommodate movable furniture in a relaxed communal space that caters for both individual workstations and group spaces which are useful for discussions, workshops, and tutoring. The users are entitled to modify the space to suit their work patterns and access to various amenities of a one-stop-shop (Farmer 2016; Colvin 2010). Furthermore, features such as natural lighting to brighten the area, bright colours, large screens for sharing whiteboards, lockers and graffiti walls complement a conducive physical commons environment for learning and research (Ray & Macy 2014).

It is essential to deliberately engage users in assessing the library spaces as they advance, it enables librarians to keep up with the postgraduates' activities as they interact within the RC environment (Childs *et al.* 2013). Therefore, students' demographics and needs have huge impact on libraries' provision of suitable space layouts that bridge service gaps surfacing during research and computational changes. It is for this reason that the physical commons is built with the hierarchical attributes of the learning spaces to achieve functional desirable spaces. More information on these attributes are detailed in the ensuing Section 2.6.

2.5.2 Virtual Commons Content

Every movable item contained within the RC environment is referred to as content. The shift in library spaces has been inevitable, mainly as a result of the agility and robustness of the computational discoveries that occurred at a fast pace (Donkai, Toshimori & Mizoue 2011). The use of Internet of things (IOT) to advance access to services and resources is essential for users to adapt to contemporary ways of

communication and advancing access to services and resources (Donkaiet *al.* 2011). Ways of learning have been profoundly affected by the utilisation of machine learning (ML); artificial intelligent (AI); digital marketing to harvest data that supports problem solving and creative decision making; including learn by share knowledge within virtual communities like GitHub, as well as library and software carpentry (Romero *et al.* 2016). Furthermore, the Fourth Industrial Revolution (4IR) has radically transformed the world in an unprecedented manner, with information and communication technologies accessible to everyone who aspires to learn and function effectively in 'the global village', including postgraduate students' use of wired libraries for learning and conducting research (Romero *et al.* 2016).

Libraries are challenged to remodel their spaces and draft new policies to conform to trends in shared facilities and postgraduate students' needs (Spencer & Watsrein 2017). In this regard, the spaces should operate outside the information lifecycle to support postgraduate students in all their research lifecycle, including collaborative research and data management (Farmer 2016). Additionally, the extent of RC support to postgraduates should encompass the research publication planning process (including publication malfeasances such as vulture publishers); managing profiles of scholarly communication; short-term training on manuscript submissions and open access (Bent 2016). In the RC space, the postgraduates will expand and integrate their real and virtual choices while sharing their experiences, which will be facilitated by access to research software, statistical software, productivity tools and workshops on the use of these tools. Around-the-clock virtual access to all the above-cited activities should be available for users beyond the university borders. Hence, the virtual commons should be adaptable to new technologies and flexibility in staffing models, demographics, needs and facilities whenever change happens (Cunningham & Tabur 2012). Further discussion on the adaptability, access and linkage attribute is continued in the ensuing Section 2.6.

2.5.3 Cultural Commons

Essentially, the notion of *cultural commons* premises on collaborative practices between, and among the critical library users and departments for the purpose of knowledge-sharing, learning and working within a digital multimedia environment (Perrault *et al.*; 2011; Weiner *et al.* 2010). All these partnership-oriented activities are referred to as functions. Therefore, the physical layout of the RC should allow students

to work collaboratively for long hours and learn together by sharing information. Such a perspective entails that the previously held and familiar essence of the library has transitioned from book-centredness to learning-centred spaces, and lately, to user-centred-ness (Covert-Vail & Collard 2012).

The RC is a contemporary space, providing a continuum of services designed to stimulate publishing, funding and knowledge-creation (Spencer & Watstein 2017; Colvin 2010; Daniels Colin Darch Karin de Jager n.d.). Trends in library space design have shaken the foundation of library services as collection development and reference services – thereby changing the content of the library training/information literacy to include skills needed for publishing, research activities, funding requirements and data management in the Fourth Industrial Revolution (Ray & Macy 2014b). This, in return, will save the postgraduates' time and the effort of moving from one service department to another, particularly in an ODL environment where students are not accorded face-to-face consultation. The RC is then viewed as a seamless stream of services, and the only place on campus that can host all the university services in a central place, in order to provide a space for postgraduate students to collaborate, create knowledge and disseminate information by using state of the art technologies (Harnish 2014). Therefore, continuous investigation justifies the integration of the user-centred designs as a critical process for the RC model development (Jong-Ae 2016).

The outcomes of activities taking place in the user-centred cultural spaces require constant assessment and measuring, since their maintenance will need financial support that requires justification for their existence (Roberts 2007). For instance, the California State University keeps statistical records and conducts usage survey to determine the users' satisfaction and expectation levels of the RC, which enables the university to keep abreast of students' changing needs (Thompson 2015).

A longitudinal study by the Association of Research Libraries (ARL) indicates that the highest scores were recorded for the library as a multipurpose space that fulfilled users' expectations by allowing for collaborative engagements in comfortable environs (Hunter & Cox 2014). Emphasis has been placed on libraries creating user-centred spaces that accommodate collaborative activities, knowledge production and less information retrieval, where students focus on writing and related research and learning activities (Trembach, Blodgett, Epperson & Floersch 2019; Oliveira 2017). In such

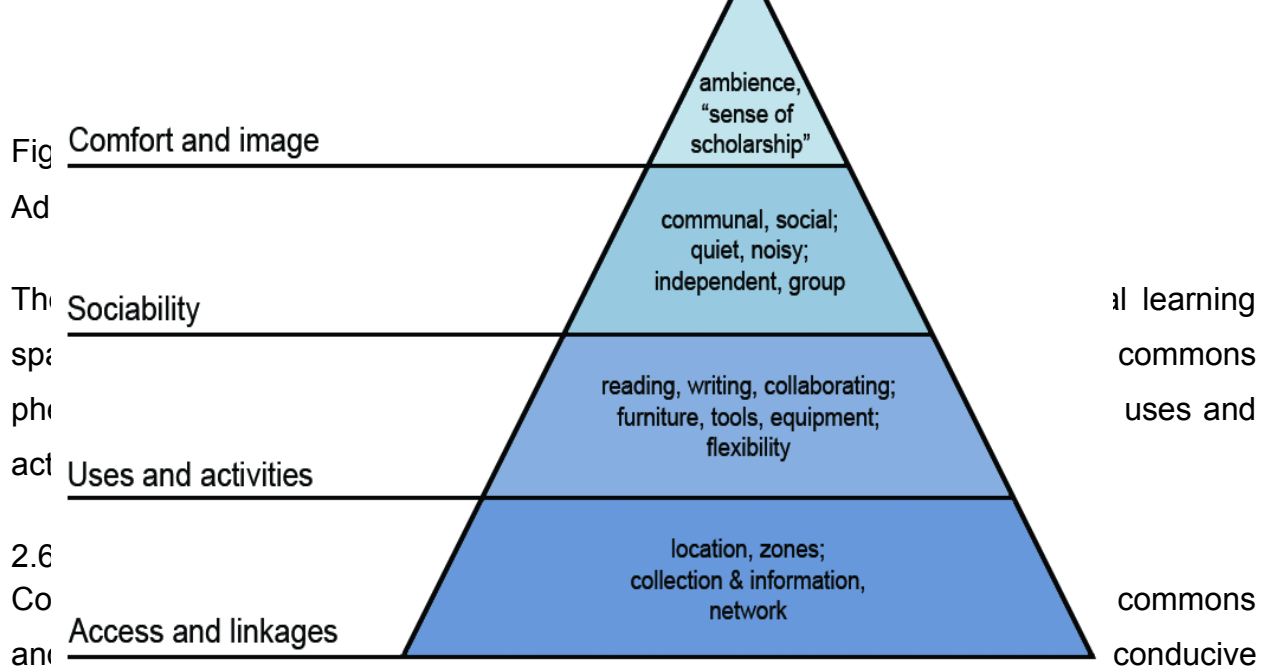
spaces, faculty members conducting research, supervision and marking. The space is also used for providing students with grant application assistance and guidance, writing practice; as well as incorporating workshops that advocate effective usage of productivity tools and the ethical usage of technology. Also, the cultural commons environment creates collaborative spaces for librarians, technology specialist, teaching experts and other professionals (Harrison 2018; Ferria et al. 2017).

As previously indicated, the hierarchy of learning space attributes framework prescribed the four attributes of a conducive learning library environment characterised by learning and comfortable spaces that are aesthetically attractive, sociable, adaptable, accessible and connected through technology (Cunningham & Tabur 2012). These attributes are critical when creating a stimulating and innovative environment that aligns the library mission to that of their parent institutions. Cultural commons are not limited to the sociability attribute alone. Rather, both the elements of adaptability, access and linkage are critical to enhancing collaborative learning efforts. This is explained in more detail in the ensuing theoretical framework.

2.6 Theoretical Framework: The Hierarchy of Learning Space Attributes

The theoretical framework basically refers to the study's extent of theoretical groundedness (Rossman & Rallis 2017; Swanson & Chermack 2013). Also, the theoretical framework is reflective of the scientific or philosophical principles, paradigms or assumptions that guide the structure, construction or organisation of a particular theory and its associated abstract ideas in conceptualising the prevalence and predictability of the investigated phenomenon (e.g. research commons) from a particular worldview or perspective (Rossman & Rallis 2017; Taylor, Bogdan & DeVault 2016).

In this study, the hierarchy of learning space attributes adapted from Cunningham and Tabur (2012) was adopted for the theoretical groundedness of the research commons phenomenon and its associated elements or variables. Figure 2.5 below is a thematic representation of the fundamental components of the learning space attributes and their sub-categories. These four main components are: comfort and image; sociability; uses and activities; and access and linkages.



for researchers and postgraduates to work and learn effectively in comfortable surroundings reminiscent of the “third place” from home or dorm and office (Dillon *et al.* 2016). Furthermore, the functionality of these learning spaces and the attendant comfort they offer is characterised by their practicality, warmth, attractiveness, durability and desirability (McDonald 2007; Kent & Myrick 2003). All stakeholders (including learning space designers and postgraduates) should ensure that the RC space is reflective of, and aligned to the postgraduate students’ activities and ICT within a reasonable budget that facilitates the one-stop-shop service model. It may be difficult to balance running costs in such resourceful spaces and maintenance costs to keep the space at its optimal capacity throughout. While running costs are not to be ignored, serious considerations should also be accorded for easy reach of reference materials (e.g. movable shelves) to allow teaching, learning and research activities to take place in the space with little constraints to movements of people (Childs, Matthews & Walton 2013).

The above-cited ambience of the commons model is conducive to the student-centred approach to teaching and learning. As such, continuous assessment spaces for students should be accommodated within the library, which also enhances its relevance and adaptability to new ways of functioning (Corrall 2018; Trans 2018; Johnson 2016; Ray & Macy 2014). In this regard, the adaptability factor is also an illustration of the academic library’s orientation to the user-centred approach, in terms of which learning spaces are more about people than books (Andrews *et al.* 2016; McDonald 2007). Thus, the partnerships and interaction of the clients with the library facilities is critical to operationalising these spaces to achieve their plans and objectives (Litsey & Mauldin 2018; Young & Kelly 2018; Hanson & Abresch 2016; Saroja & Minhaj 2015).

The external and internal image of the RC library indicated above, reflects the boldness and innovative character of the library 4.0 approach (Baker 2016; Banks & Chikasanda 2015). Therefore, both the library's user-centredness and student-centredness (in the pedagogic and didactic context) are important factors for ensuring that the public academic university library is not stuck in the erstwhile collection centred mode.

At the centre of this grand design, researchers, should find resources needed to execute their activity, advanced hardware, software, printer and accessories such as (headphones, chargers, adapters, etc.), which will enable them not only to interact with high-tech, but also to connect and collaborate with peers and experts in their field both near and afar. On the other hand, the space should be open and receptive to new technologies as they develop. The staffing model should also reflect the purpose of the hybrid space. A hybrid staffing model is appropriate to optimise the use of resources and skills in such a space. However, there should be balance between pedagogy, research goals and the aesthetic features of these spaces. Any artistic features should be included for reasons beyond beauty (e.g. for historical representation or calming effects) (McLaughlin & Faulkner 2012). The next element demonstrates the sociability aspect of the research commons.

2.6.2 Sociability

Ideally, and due to different postgraduate students' needs, as well as teaching, learning and research activities, there is no monolithic model for all library spaces. Hence, it is imperative for the designers, librarians, students and other stakeholders to work together to achieve multi-purpose user-centred spaces where students are encouraged to take ownership and make these spaces their 'third-places' (Farmer 2016). Such 'third places' should consist of single quiet spaces and a variation of group work and interactive spaces to accommodate collaborative learning and rest spaces. These hybrid spaces should include large and small seminar auditoriums to accommodate webinars, online training, supervision, face-to-face tutoring, and 'skyping'; as well as ergonomically appropriate furniture that includes big and small tables, different types of movable chairs to justify the time students spend in these places while learning at their own time, pace and style (Cha & Kim 2015; Janse van Vuren & Latsky 2009).

To a certain extent, the RC should consider varying temperature levels and natural lighting, while cautiously considering environmentally safe and stimulating lighting, colour co-ordinates, flooring, natural plants. In this regard, sound and acoustics consultants are becoming part of the designing team to enable noise control levels. Visual clues should be carefully considered as well, in order to stimulate students' energies and moods (Romero *et al.* 2016). However, the achievement of hybrid spaces that are inclusive of campus demographics will remain a challenge. There should always be a clear and distinctive resource driven purpose for designing such a space in relation to academic/ research and social activities (Hanson & Abresch 2016). Some libraries design the space for library purposes, while others design them as joint innovative ventures to maximise resources, skills and costs.

University libraries continue to incorporate a diverse range of non-traditional library services, such as integrated student support services characterised by one-stop-shop service delivery approaches, social learning spaces and learning cafes, among others (Tran 2018). There are different yet appealing opportunities in planning these multi-purposed places, but the DHET, university, community and business fraternities should have a common understanding of the role and importance of these spaces as higher education (HE) is approaching an unusual pedagogical terrain where students across the world learn asynchronously; especially that the space is about people and not books (DHET 2017; McCaffrey & Breen 2016). The space conveys a sense and ambience of warmth, welcoming human-centred values, safety and research related resources, services and activities (Wexelbaum 2016). Generally, the space should inspire and motivate researchers and postgraduate students to work for long hours, which justifies its existence, investment and continuous maintenance. The place should always be kept clean and well organised layout, since the RC's integrated user-centred space and environmental requirements are critically weighed (Asher 2017).

Dust and pollution level should be monitored, especially that putting a certain amount of computational connectivity needs some type of room-size ventilation and number of people specifications, including air conditioning, and fresh air and oxygen flows (McLaughlin & Faulkner 2012). A balance between natural and artificial lighting should be maintained, considering the green building to save energy as much as possible especially because libraries have a considerable usage of energy and water

(McLaughlin & Faulkner 2012). The library should also discourage paper photocopying and printing to enhance its 'green environment' status.

In any public building, there is an element of risk associated with people and equipment. Therefore, the RC design should comply with the occupational health and safety (OHS) standards and apply extra precautionary measures for people including staff who may be acrophobic (fear of buildings/heights). Advice must be sought with the South African Bureau of Standards (SABS) with regards to the type of chairs to be used that essentially compromise the look and feel of space (Wexelbaum 2016). Users should be advised regarding the importance of stretching one's legs, sitting properly and the effects of technology on one's health (Patel, Pettitt & Wilson 2012).

2.6.3 Adaptability

Adaptability/ flexibility is the virtue for change, and change is inevitable more than ever in the library ecosystem (Seal 2015b). Therefore, planning for such space to suit these changes is important but challenging, especially when considering factors such as computational lifespan, fiscal forecast and staff competencies (Silka & Rumery 2013). These spaces require a collective strong vision since predicting the future of library roles is like attempting to predict the needs and behaviour of the next generation of library users. It is impossible, but the space should anticipate changes in electronic learning and the higher education landscape. Thus, the best option is to be ready and to continue seeking new approaches through assessment and evaluation (Harrison 2018; Johnson 2016; Jubb 2016). At the most, the structural plan should be durable, so should be the furniture, technology, flooring and acoustics; all of which bear reasonable costs and are easy to tear (Asher 2017). Some libraries envisioned a library without books, which are compacted to create more space for people, interactions peers and machines (Pierard *et al.* 2019).

There is optimism in the future of libraries due technological advancement, but bleak and redundant if they do not adjust to trends in technology (Baker 2016). The following libraries are some of those that have evolved considerably, compared to their past traditional era: Duke University (Bostock Library), University of California Los Angeles (UCLA), University of Johannesburg, University of Pretoria, and Ohio State University. All these universities have taken the requisite bold steps by breaking the silos of working alone (Raju *et al.* 2018; Pritchard 2014).

2.6.4 Access and Linkage

The RC should be an inviting space to its users (Van Wyk & Kadzenga 2018). It is imperative that students easily find a place and resources that will help them to sit and work independently when they walk into a research commons space has clear, simple and yet visible signage systems and saturated with electrical ports, plugs and network poles to keep on accepting more users and new functions (Corrall 2017; Hanson & Abresch 2016). To that effect, libraries are lately using digital, plasma and audio signages. Since it is identified as the hub of information and a central place on campus, the library necessarily supports scaffolding, which is social or peer learning methodologies that allow librarians to showcase different workshops - from referencing software to research and statistical software sessions in collaboration with experts (Wittenberg, Sackmann & Jaffe 2018). Its information capacity enables the library to also provide one-on-one sessions, on-and-off-line, and just-on-time teaching and learning methodologies; as well as open access to proprietary software and databases for the research community (Fox & Doshi 2013). This space is comprehensive, where postgraduates from various learning and research styles are catered for, and librarians are able to assist clients without wasting valuable time working in silos. Hence, many scholars suggested upskilling librarians to fit into this new space (Wittenberg *et al.* 2018). Therefore, librarians should spend time marketing the RC services and closing services gaps as they surface.

Due to a growing demand for extending after-hours access to weekends and public holidays, digital access to the premises for ease of access is necessary for security and data collection reasons as well (Young & Kelly 2018). The design should also include world building standards that also comply with legal requirements for access and learning needs of disabled people. The essence of bringing people, technology and services together is an art that only few can garner (Khoo *et al.* 2016). According to McDonald (2007) and Macwhinnie (2003), achieving the balance between space for collection, services, ICT and staffing model to manage this balance is also a huge concern that needs a skilful and strategic team. This interaction should be reflected in the physical and virtual space designs, the critical components of the RC model.

2.7 Clientele of the Research Commons

The research commons is built on a commons model that supports faculty and graduate students' productivity and success (Dallis 2016; Dowson 2016a). As pressure continues to increase in institutions of higher learning for publishing, knowledge creation and sharing, libraries concomitantly see the need to provide dedicated shared facilities suitable for postgraduate students, researchers and staff; while also fighting to remain relevant (Association of Commonwealth Universities 2015; Watkins & Kuglitsch 2015; De Jager, Nassimbeni & Crowster 2013). Most research commons websites articulate clearly that the RC is a dedicated space for postgraduate students, staff and post-doctoral fellows. These websites include the University of Pretoria Library (2019), University of Cape Town (2019), University of Johannesburg (2016), University of Kwa Zulu Natal (2019), University of South Africa (2019), University of Pretoria (2019), Stellenbosch University (2019) and University of the Witwatersrand (2019). It is for this reason that scholars such as Pennington (2016) and Dowson (2016b) argue that the RC model should operate within the research life-cycle.

James (2013) and Childs et al. (2012) contend that the expansion of diversified student populations demand for academic libraries to establish user groups in the RC spaces and determine the different perceptions that may exist among the different user groups. There is also the demand for libraries to cater for their users and librarians' needs in order to establish *who* enters or visits the RC; *why* they visit the RC; and *how* they use the library facilities (OCLC, 2010). Meanwhile, Peterson et al. (2013) intimates and reiterates that libraries are transitioning from collection-centredness to more user-centredness to enhance a better position from which to support postgraduate learning styles.

The foregoing discussion makes the complexity of the RC model evident – mainly because the model does not only extend the physical place to the virtual space content, it also blends different stakeholders in the mix with the intention of hosting varied services. Childs et al. (2013) predicted that changing students' demographics and needs at different campuses has affected academic libraries' roles and services. To that effect, Bower, Sheppard, Bayjoo & Pease (2017) argue further that user-centred designs not deviate from the almost sacrosanct goal of creating efficacious spaces that efficaciously prioritise their intended users' needs. Such a user-centric approach enables focus on resourceful understanding of the students' experiences as they interact with

the facilities; determining user needs; and resolving existing problems to improve (Bower et al. 2017).

2.8 Postgraduate Students' Needs

Postgraduate students are central to RC services. As such, library space ought to transform in tandem with the learning styles and needs of the 21st century postgraduate student, who is also imbued with the quest for using information and creating knowledge in a digitally propelled environment (Jaguszewski & Williams 2013b; Roberts 2007). However, the efficacious use of RC spaces necessitates that the self-same students be made aware of the prevalence of these RC services provided. Therefore, the externally driven changes and their concomitant effect on the internal higher education teaching and learning dynamics compels that even librariansought to realise and understand the changing scholarship and research needs and practices; as well as student demands for improved library services that match their learning needs (Bagudu & Sadiq 2013; Covert-Vail & Collard 2012). Librarians' understanding of the evolving environment of their profession could even contribute to chiselling the future directions of the library that cohere with the library's mission in the university. Therefore, it is critical for the RC model to align its strategic plans to the vision of a parent institution and to produce the intended outcomes of cultivating research-focused environments.

Investigating the perceptions of postgraduate students is another way of identifying their needs (Baker et al. 2018; Breen, Dundon & McCaffrey 2018; Oyewumi, Oladapo & Adegun 2014). Through user assessment exercises, librarians should become aware of the internal and external changes occurring as postgraduate students interact with the RC facilities. Accordingly, librarians should not neglect their service; where necessary, they should alter their services and resources before they affect the users negatively (Cox 2019; Covert-Vail & Collard 2012; Xia 2005).

Factors such as the commodification of the higher education curriculum and the proliferation of non-traditional higher education providers have ushered-in an epoch in which students have become more of paying customers to their institutions and they demand 'value for money' in the educational services they receive (McLaughlin & Faulkner 2012; Robinson & Reid 2007). In this regard, the RC model is uncompromisingly pushing for user-centric services. That is, librarians need to base

their services on user experiences and needs as they evolve (Trembach et al. 2019). Librarians will then no longer be able to dictate the type of needed collections, databases, library floor plan and collection-centric furniture. Librarians also have to consider that postgraduates are multitasking and work through a tight schedule of submission dates for their empirical research, outreach programmes full-time or part-time work and personal responsibilities (Association of Commonwealth Universities 2015).

There is agreement among scholars that postgraduate students increasingly need technical, academic and research assistance, and no longer demand librarians' search skills as they are able to conduct their own research by using databases and search engines such as Google-Scholar (Macwhinnie 2003; Covert-Vail & Collard 2012; Beagle 2011; Daniels et al. 2010). Postgraduate students need Internet connectivity, because virtually all they do is web-based; however, it does not discard their use of print materials. There is a strong indication that many South African academic libraries have also aligned their services towards postgraduates' research needs by establishing RCs in their premises (Raju & Schoombee 2014; Hart & Kleinveldt 2011; Daniels et al. 2010). Such alignment should ensure that the RC physical spaces and services are crafted around the research life cycle and obviate gaps that may surface in their service delivery provision and inhibit maximum satisfaction of student needs.

Understanding students' needs and perceptions has brought a context for change and adaptability of services and resources in academic library spaces (Young & Kelly 2018; Spencer & Watsrein 2017; de Jager, 2015). Generally, the reviewed literature on understanding of postgraduate students needs and experiences has projected on the following major developments and themes: awareness of library resources; users' preferences; users' expectations; users' satisfaction levels; and library users often being unaware of the role of the librarian. Such a situation calls for protracted collaboration between faculty and librarians to mediate the gaps that may be imposed by tight working schedules and submission dates of postgraduate students' work (Loertscher & Koechlin 2014).

2.9 Summary

This chapter reviewed the literature relating to the RC model, which involves the physical, virtual and cultural commons; as well as the characteristics and qualities of

these library spaces. The chapter also presented the theoretical framework based on the hierarchy of learning space attributes. The research commons clientele and the user needs were also explored. The next chapter focuses on the research methodology of the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This study has focused its investigation on the experiences and challenges faced by librarians in the conversion process of traditional academic libraries to the research commons model. In that regard, the current chapter essentially addresses the research methodology underpinning the study. For purposes that are consonant with both the nature of the investigated problem and the study objectives, the structure of the chapter encapsulates the principal methodological units of analysis as a sequel to the previous chapter to allocate a framework on whose basis the actual data collected (presented in the next chapter) becomes meaningful and realistic, rather than entirely theoretical (Leedy, Ormrod & Johnson 2019; Schroeder & Hollister 2014). In addition, the chapter presents and concludes with issues of trustworthiness.

Research methodology is an overarching term used for a systematic process of deriving meaning from the collected data in order to find possible solutions to the research problem, research objectives and the attendant questions (Leedy *et al.* 2019). Researchers rely on a systematically organised methods and procedures when conducting empirical research (Rossman & Rallis 2017). In this regard, the study achieved its purpose by adopting the research onion model of Saunders *et al.* (2019). This model was preferred by the researcher because of its clarity and integration of the principal units of analysis in relation to research methods and approaches. Figure 3.1 below depicts the onion model whose various aspects are discussed in more detail below.

Figure 3.1: Research methodology aligned to the onion model

Source:Saunders *et al.*(2019:130)

In terms of Figure 3.1 above the onion model is presented as compliant with both qualitative and quantitative aspects of research, both of which have been adopted in this study. All of the principal units of analysis highlighted in the figure are discussed in the ensuing sections.

3.2Research Paradigm

Research paradigm is reflective of a perspective from which empirical research is conducted in relation to the field of study, methods of data acquisition and analysis to provide solutions to the research problem and its attendant research question(s) (Bryman 2012).Positivism, interpretivism/ constructivism, and pragmatism are some of the most commonly known research paradigms(Leedy & Ormrod 2015).In the positivist research paradigm, knowledge is believed to be acquired objectively with no interference or influence by the researcher (Neuman & Robson 2018).On the other hand, interpretivists/constructivists posit that knowledge is socially constructed by an understanding of human experiences(Thompson 2015).The pragmatic paradigm posits that true knowledge can only be acquired bymerging or combining both quantitative and qualitative research methods used by positivists and interpretivists. Such a paradigmatic position by interpretivists is inspired by the belief that there are multiple realities , and that knowledge is a subjective factor of human experiences in groups or individually (Kivunja & Kuyini 2017).Therefore, this study fits well with thepositivist paradigm insofar as its incorporation of an assessment questionnaire/survey in its quantitative mode of

data collection, which also facilitates numeric or statistical interpretation of data. Meanwhile, the interpretive or constructivist paradigm fitted well in this study on account of the participants' perspective in the field were relied on to provide qualitative data concerning their experiences and understanding of the research commons phenomenon in its physical, virtual and cultural manifestation.

3.3 Research Approach

Scholars such as Rossman and Rallis (2017) and Taylor et al. (2016) contend that a research approach is basically described or defined in terms of the research paradigm which the researcher has adopted. For example, a predominantly positivist inspired study would adopt a quantitative approach, whereas a qualitative approach would largely conform to the constructivist or interpretive research paradigm. Meanwhile, Creswell and Creswell (2018) describes the research approach as the planned steps and procedures adopted by the researcher to manage the strategies and methods of collecting, analysing and interpreting data. Therefore, the research approach integrates all the components of the research methodology in a single investigation (i.e. research paradigm, research design and research methods). It is mainly on account of the integrative factor that the study adopted both qualitative and quantitative research approaches to maximise the participants' (i.e. librarians') objective experiences (through an assessment questionnaire) and subjective views (through interviews and observations) (Cozby 2020; Walliman 2018).

Furthermore, the researcher opted for both the qualitative and quantitative *research approaches* on account of the challenges that this study seeks to address, as well as the researcher's personal experiences concerning South African public university libraries' transitioning to the research commons variant. The researcher avers that the RC service delivery model is understood differently by librarians from different universities as well as within each university. Such perceptions might influence the conversion process.

Figure 3.2 below reflects the schematic arrangement of the research approach adopted in this study, followed by a detailed discussion relating to the (inductively inclined) qualitative methods of collecting and analysing data; as well as the (deductively inclined) approach for analysing and interpreting data quantitatively.

Figure 3.2: Research approach steps

Source: Researcher's adaptation from various sources

Figure 3.2 above, aptly coheres with the study's qualitative and quantitative research approaches and processes. For instance, data collection and analysis occurred concurrently, notwithstanding that the collection of data precedes its analysis (Creswell & Creswell 2018; Edmonds & Kennedy 2017). Accordingly, the positivist-quantitative orientation of the study allowed for the utilisation of the assessment of libraries questionnaire as a means to obtain an objective view of the librarians' reality with the predominant characterisation of the questionnaire items by close-ended responses that precluded any subjective responses (Edmonds & Kennedy 2017; Nieuwenhuis 2016).

The qualitative approach was advantageous for its emphasis on the interpretation of reality from the participants (librarians) in relation to RC conversion strategies, and identification of factors that contributed to the success and challenges attendant to such conversion. Despite its advantages, the qualitative approach is limited insofar as possible researcher bias is concerned (Yin & Campbell 2018). Other limitations include complex time-consuming data gathering and analysis processes and duration of the study, especially for novice researchers (Yazan 2015). Therefore, the qualitative and quantitative *research* approach was conducive to the researcher's multi-pronged strategy of eliciting both objective and subjective experiences of the selected librarians, which was sufficient to generate in-depth and new information to assist the process of resolving the research problem and accomplishing the study's objective without

interfering with the elicitation of information from the participants(Yin & Campbell 2018; Edmonds & Kennedy 2017).

3.4 Research Design: Case Study

The research design basically relates to the overall plan or strategy for managing the study's execution processes in relation to the type of instruments and methods utilised for obtaining data and analysing it in order to resolve the research problem and questions while also advancing the attainment of the study's objectives(Almalki 2016).Whereas the latter authors represent a research tradition or intellectual perspective according to which research design encompasses both *processes* and data collection *instruments*, scholars such as Yin and Campbell(2018)and many others accentuate the data collection *instrument* above *processes* entailed in the acquisition of such data.

The following research designs are recognisably associated with qualitative research: case study; ethnography; phenomenology; and grounded theory(Yin & Campbell 2018; Ngulube 2015; Yazan 2015). Case study is defined as research design that examines or investigates a contemporary state of affairs within its naturalistic context and in real-time, especially in the event that there is a degree of opacity between a phenomenon and its context(Ngulube 2015; Yazan 2015).It is worth noting that case study design is flexible and accommodates small samples to represent the targeted population, whilealso allowing for a combination of multiple data acquisition instruments in a single study(Creswell 2014; Aneshensel 2013). All these cited case study attributes or elements are applicable to the current study, which involves a small, but significant number of librarians responding to questionnaires and interviews in the same study.

Furthermore, the case study design approach still enhanced the exploration, description, and interpretation of the data collection process in the context of a predetermined conceptual framework; that is, the hierarchy of learning spaces attributes (Babbie 2016; Choy & Goh 2016). The exploratory aspect of the casebeing investigated (i.e. RC conversion strategies/ trends and challenges in South African public university libraries) is based on finding more details pertaining to the magnitude of the *case* and its prevalence (Saunders et al. 2019; Yin & Campbell 2018). Explanatory case study accommodates cause and effects in every encounter that happens when the participants interacts with the phenomena (Yin & Campbell 2018). That is, theories or

conceptual frameworks used to explain the phenomenon should be identified and referred to when analysing data in a single study (Creswell & Creswell 2018).

On the whole, the explanatory case study strategy was beneficial to the current study because of its flexibility to combine data collection instruments, especially in the investigation of a broad phenomenon such as the research commons and its multi-faceted components (Creswell & Creswell 2018; Yin & Campbell 2018). In spite of the size of the sample, the inclusion criteria ensured that those librarians who eventually participated in the study were optimally representative of the 'case' being studied (Cozby 2020; Walliman 2018). At the current state of the RC's development, managers/librarians are able to conduct usability studies and partake in a complex project (such as RC conversion) by virtue of their advancement of their own personal career improvement studies.

Authors such as Rossman and Rallis (2017) and Kumar (2014), assert that the context of the problem to be solved and research questions to be answered by the study usually determine or specify the nature or characteristics and type of instrumentation used for gathering data. In that regard, and for purposes of this combined qualitative and quantitative study, questionnaires were utilised for the gathering of quantitative data, while interviews and observation of the RC's physical environment were applied for the qualitative data gathering aspect of the study.

It should be noted that 'research methods' and 'data collection' are two distinctly dissimilar concepts. The former (research methods) categorically relates to *specific tools* used for acquiring data, while data collection premises fundamentally on the *processes/ strategies* utilised in the gathering of the self-same data (see Section 3.6).

3.5 Population and Sampling

The study population encompasses the entire group of individuals (universe) with similar or common traits, and from which a representative sample will be selected (Creswell & Creswell 2018). In this regard, a targeted population emerges because of the degree of representative characteristics or features that are of interest to the researcher for purposes of advancing some critical aspect(s) of the study.

Characteristically, the target population is selected according to the population parameters that consist of cohesive features within the self-same population. The target population also includes the total group of elements that meet the requirements for inclusion in the study (Saunders et al. 2019; Bell, Bryman & Harley 2018). Population parameters guarantee that the data is collected from a well-defined scope of the target population that matches the study objectives. For reasons consistent with the case study approach, the population was all the public universities in South Africa that have converted their libraries to the RC model. However, the target population consists of only the public universities in Gauteng Province that converted to the RC (Bell et al. 2018). It is from this targeted population that the actual sample was selected.

3.5.1 Sampling

Sampling premises on the systematic process of selecting representative participants from a specified segment of the target population (Maree & Pietersen 2016). This segment is referred to as the sample, which is essentially a subset of the target population (Yin & Campbell 2018). Probability and non-probability sampling strategies are the foremost methods from which to choose the most applicable in respect of the preferred research methodology. The following are examples of the non-probability sampling: purposive; convenience; snowball; and consecutive sampling (Creswell 2014). The researcher opted for the non-probability sampling strategy for its efficacy when studying particular cultural domains with knowledgeable and qualifying experts in a specified population within a much defined timeframe without any restrictions imposed by a proportionality requirement (Yin 2014). In this study RC managers / librarians are experts amongst other librarians. Therefore, proportionality is qualitative (based on knowledgeability/ expertise) in this case, rather than quantitative (based on the number of Gauteng Province public university libraries which are seven in total, only four converted their libraries into the RC. However, only three opted to participate in the study) as discussed in the next section 3.5.2.

3.5.2 Sampling Criteria

Sampling criteria specify the range of norms or standards in terms of which prospective participants are legible (qualify) for either inclusion or exclusion (ineligibility) in the study (Rubin & Babbie 2016; Taylor et al. 2016). Inclusion or eligibility criteria prevails in the event the sampled participants possess homogenous (similar or representative) qualities with the target group from which they were selected. Conversely, those

participants with heterogeneous or dissimilar traits were disqualified or considered ineligible (excluded) from any form of participation (Walliman 2018).

The following inclusion criteria were considered and applied:

- Only librarians or managers of public university libraries or TVET college in Gauteng Province;
- Only public university or TVET college librarians or managers who are working in the RC.

The following main criteria constituted the exclusion/ ineligibility criteria:

- Any private university, whether or not based in Gauteng Province; and
- Any librarian of a public university or TVET college in Gauteng Province who does not work in the RC.

3.5.3 Sample Size

The sample size refers to the number of participants selected from the target population (Leedy et al. 2019; Almalki 2016). Creswell and Creswell (2018) postulate that there are no clear rules for selecting a qualitative sampling size, and that it is the researcher who decides on selecting a bigger sample data until saturation is attained. Gauteng Province consists of four institutions that have converted to the RC mode however, only three of these public university libraries participated in study. The sample size of three was adequate because that was the maximum number of participants that could be obtained. However, this did not compromise the integrity of the study since qualitative proportionality was achieved (see sub-section 3.5.1).

3.5.4 Case Setting

The study was conducted in Gauteng Province, South Africa. Gauteng Province is one of the country's nine provinces, covering an area of 18 178 km², or approximately 1.4% of the total land surface area of South Africa (Kadt, Ballard, Cheruiyot, Culwick & Graeme 2019; Augutyn, Bauer & Duignan 2017). Notwithstanding its size, the province is also the most populous, and the economic harbour of the country and the sub-continent, responsible for over 34.8% of the country's GDP (Statistics South Africa 2019; Wiid & Diggins 2015). Of the 26 public universities in the country, seven are based in Gauteng Province. All participating public university libraries in the study are located in Johannesburg. Figure 3.3 below depicts the map of Gauteng province with all its municipalities: City of Tshwane; City of Johannesburg; City of Ekurhuleni; Sedibeng; Lesedi; Emfuleni; Mid-Vaal; Mogale City; West Rand; and Merapong City.

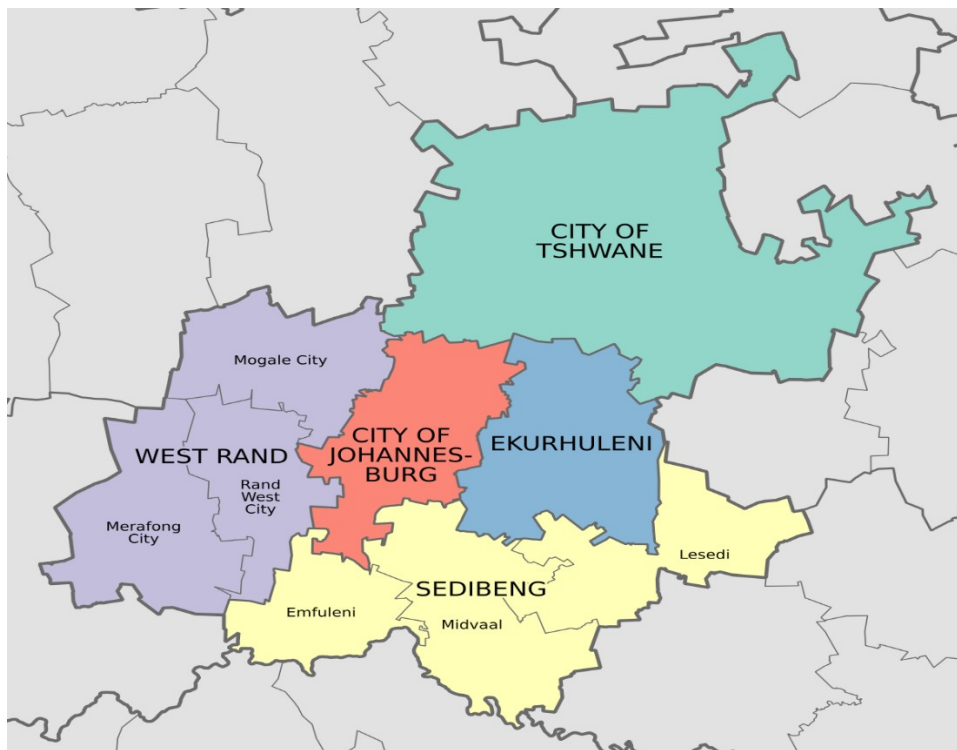


Figure 3.3: Map of Gauteng Province's municipalities

Source: Gauteng City Region Observatory (2019)

From the seven public universities and universities of technology in Gauteng province, only four have converted their erstwhile traditional libraries into the research commons model. The geographic location of the three universities was convenient for the researcher to access their respective campuses and libraries. The three institutions are referred to as 'research universities' in accordance with the DHET's categorisation system of higher or post-basic education institutions. Research universities are mandated to increase the country's research outputs and postgraduates' throughputs (Department of Higher Education and Training (DHET) 2014). More information about the universities is entailed in the ensuing Section 4.4 of Chapter Four.

3.6 Data Collection Methods

The gathering of (primary and/or secondary) data is a critical component of any research project (Neuman & Robson 2018; Cooper & Schindler 2014). The researcher opted for a combination of data collection strategies in order to consolidate data acquisition sources for the case being investigated. Accordingly, the questionnaire, semi-structured interviews and non-participant observations as the primary data collection instruments for the empirical evidence of this study (Saunders et al. 2019; Yin & Campbell 2018). The collected primary data explained the conversion process, and identified factors that

contributed to the success and factors that hindered the conversion from the participants' experiences (Leedy et al. 2019; Edmonds & Tenenbaum 2012).

3.6.1 Questionnaire

A questionnaire is characteristically, the interrogative form of core statements entailed in both the problem statement and objectives of the study (Babbie 2016). Questionnaires are typically used for collecting mostly objective information according to a sequence of close-ended questions focusing on specific details or aspects of the study. However, the questionnaire could also include some open-ended questions to gather more information that was not collected in the closed questions, which is the case in this study. The questions are principally designed to harvest answers that particularly addressed the research problem (Strang 2015).

Appendix G in this study reflects a questionnaire (adapted from Barton, (2018) and was utilised as an initial assessment instrument. The questionnaire was emailed to four sampled universities, but only three responded. Data acquired from the questionnaire provided information indicating the change in gate count, preferred space, services, and resources confirming the reasons for the conversion of the three libraries identifiable by the pseudonyms RC1, RC2, and RC3. The fifth question identified the top two activities in the respective RC. The sixth questionnaire item is open-ended, and the seventh (close-ended) question focused on the budget, staffing size and model, and operating hours.

The questionnaires were sent to the four sampled libraries by e-mail with the 'please respond (RSVP)' message and suggestion for an interview date. However, only three participants booked an interview date, but did not attach a completed questionnaire. Therefore, the questionnaire was completed before the interview session on the same day.

3.6.2 Semi-structured Individual Interviews

Interviews are organised instruments for gathering data through reciprocal conversations characterised by talking and listening to participants (Maree & Van der Westhuizen 2012; Brinkmann & Kvale 2009). In essence, then, interviews are a dialogue between the interviewer and the interviewee, wherein the researcher asks questions to gather information that will elicit the participants' perspectives about a particular aspect of the

core research variables or unit of analysis. In the context of the current study, the researcher sought to obtain the experiences, perceptions and knowledge of the librarians/ managers concerning the applicability and challenges of RC conversion in their universities.

The interview responses served as findings that could be used as guidelines to other libraries when embarking a research commons conversion process (James 2013). However, Yin (2014) cautions that trust and confidentiality between the interviewer and interviewee should anchor the process of collecting data, because the interviewee can only open-up to share sensitive information provided that a modicum of rapport and trust has been established. Both the researcher's experience and professional background of many years in public university library sector stood her in good stead and was conducive to a good relationship based on mutual respect and trust with the participants (Almalki 2016). Consequently, they trusted the researcher enough to participate freely and respond convincingly to probing (follow-up) questions to the point of unfettered data saturation (Kumar & Cheddie 2014; Kent & Myrick n.d.).

Semi-structured individual interviews were utilised to respond to every question prepared by the researcher for the allocated time (Barton 2018; Cicchetti 2015). Notwithstanding that they are labour intensive and time-consuming, interviews are still regarded as the most viable instruments for the collection of data needed to respond to the research questions through the lens of the RC managers/librarians as the sole informants providing their own experiential perspectives regarding the RC conversion. On the other hand, semi-structured interviews were flexible and allowed participants' in-depth reflection, which was assisted by the researcher's non-deviation from the interview schedule (Wildemuth 2016). This process helped the researcher to develop a realistic sense of the participants' understanding of the conversion process, its context, and the elements of commons model.

The interview sessions were audio recorded with the permission of the participants, notes were taken, and data was managed by checking whether the number of interviewees' responses was equal to the received RSVPs. Saunders *et al.* (2019) and Al-Yateem (2012) considered recording as more effective and authentic because the participants' verbatim responses remain in their original unaltered state for long. The researcher used the interview protocol (Appendix F) adapted from Barton (2018) which

incorporated the sequence of open-ended questions designed to prompt participants to share their experiences about the conversion process. The interview log is divided into five sections, for the biographical data, institutional description, and the context of the RC, administration as well as the leadership and changes that were made for the conversion. The duration of the interviews was 1 (one) hour to 1 hour and 30 minutes. At both RC1 and RC2, the deputy directors were involved and supported the interview-based data acquisition process. In total 3 RC managers participated in this study namely RC1, RC2 and RC3

3.6.3 Non-participant Observations

As types or forms of qualitative data acquisition, observations are described as the systematic description of events, behaviour and artefacts in the social setting of both participants and non-participants (Flick 2019; Creswell & Creswell 2018). Such non-participant observations enabled the researcher to interact with the RC physical environment adequately, while non-participant observations are not disruptive and limit the researcher's scope of acquiring pertinent information (Nieuwenhuis 2017; Walshe Ewing & Griffiths 2012). It was very necessary for the researcher to assess the changes in library spaces, services and resources, and to observe clients' interaction with the facilities in terms of seeing, hearing and touching (e.g. the furniture and multimedia digital equipment) (Walshe *et al.* 2012).

The observation guide (Appendix H) is self-designed from the international best practices literature and online resources (websites and online guides). The researcher formulated a 'tick box' observation guide for participants as well. This was a useful process because the participants offered to accompany the researcher during the non-participant observation 'walk abouts' of the library facilities. Thus, conversations continued even during the 10-15-minute tours of the libraries to assess their RC 'compliance'. In this regard, observation-based data complemented other data collected by means of the questionnaires, individual interviews and field notes taken during the interviews (Flick 2019).

3.7 Data Management and Analysis

Until it is processed into intelligible and useful knowledge, the mass of raw (unprocessed) information does not yet constitute 'data' (Aneshensel 2013). Therefore, 'data' could be construed as systematically processed (synthesised or

analysed, de-constructed and/or reconstructed) information that is usable for a variety of purposes, including the extent of resolving the research problem; determining the extent of attainment of the research objectives; answering the research questions; or establishing the significance and value of the study (Vasileiou, Barnett, Thorpe & Young 2018). Data management, then, is the pre-analysis stage of preparing and preserving processed data from contamination prior to its conversion into meaningful themes and/or categories according to the researcher's preferred analytic method, and from which conclusions could be drawn and findings made about the investigated phenomenon (Vasileiou et al. 2018).

All the empirical information and data (including the audio-recorded interviews, field observation notes and questionnaires) was transcribed and on Excel sheets as part of preparation and collation for the subsequent process of analysis. The information and data were subsequently saved digitally on compact disc (CD) and Universal Serial Bus (USB) device.

Data analysis itself (which can also occur concurrently with data collection) refers to the process of systematically organising (synthesising) and categorising the collected data into a meaningful structure, based on the patterns of frequently emerging information (Creswell 2014). In essence, data analysis involves several related operations that are intentionally performed to organise, categorise and summarise the collected data such that the research questions are answered, interpreted and logically presented (Walliman 2018). Ideally, the researcher's intention is to reduce clutter from raw data into significant patterns or themes (Creswell & Creswell 2018). Clutter and redundant or superfluous details of information (i.e. personal and irrelevant or unrelated to the research problem and objectives) can be reduced through an analytic identification and categorisation of the raw data into relevant themes.

The collected data from the questionnaires, semi-structured interviews and observation notes was analysed concurrently, which is in conformity with assertions by Nieuwenhuis (2016) and Cohen, Manion and Morrison (2007). Concurrence implies that data collection and analysis should happen simultaneously as soon as data is collected, and description of findings should proceed thereafter. That is, as the researcher collects data, it is processed through transcription, analysed and interpreted for presentation. Therefore, the process of concurrence does not apply sequentially (Chu

2015). Throughout the data collection stages, pre-analysis took place during the interviews and non-participant observations by taking notes and transcription of audio-recorded data verbatim to organise data (Elo et al. 2014).

Necessarily, the influence and effects of both the combined quantitative-qualitative design approach and its attendant multiple and concurrent data collection and analysis methods, induced a *convergent analysis* in terms of which the quantitatively and qualitatively generated themes were merged/integrated and collated according to their response to the research questions and objectives (Cohen, Manion & Morrison 2018). Convergent analysis itself premises on the application of various data analysis processes for the same study (Soilemezi & Linceviciute 2018). Given the range of stakeholders, methods and approaches, the systematic review, classification and synthesis of differently acquired information required that flexibility be applied during all stages of data analysis in order to converge or merge the different contexts of data into major themes and their attendant categories (DePoy 2020; Edmonds & Tenenbaum 2012). Chapter Five of this study reflects a typical approach to the convergence of themes and content derived from the conversations and discourses with the participants.

The presentation of data in Chapter Four is indicative of the convergent data analysis method, according to which each set of data was analysed separately and the findings of each merged into global themes matching the study's objectives (Leedy *et al.* 2019; Gale, Heath, Cameron, Rashid, & Redwood 2013). It should be noted that the convergent analytic process was not an end itself, but a means towards an end by which the converged themes emerging from the collected qualitative and quantitative were represented as composite parts of a single study, and not three 'cases' (Creswell & Plano-Clark 2018; Yin & Campbell 2018).

3.8 Trustworthiness of the Research

The notion of 'trustworthiness' fundamentally reflects a quality assurance test of the efficacy of the research instrumentation opted for, and the quality of the eventual data collected (Korstjens & Moser 2018; Du Plooy-Cilliers 2014). Accordingly, the trustworthiness frameworks of integrating the methodological quality and scientific rigour of the study should be assessed in terms of the findings' and research instrument's credibility, transferability, dependability and confirmability (Wildemuth 2016; Koonin 2014; Kumar 2014).

3.8.1 Credibility

Credibility (internal validity in quantitative studies) relates to the extent to which the research tools have achieved their initially stated objectives (DePoy 2020; Creswell & Plano-Clark 2018). Therefore, credibility is a validation of the extent of agreeability between the quality of the research instrument and the ultimate results it has produced. The study's credibility was achieved by ensuring that both interview and questionnaire items strictly adhered to their written schedules. Therefore, only issues relating to the research problem and study objectives were addressed (Beagle 2010). At any rate, any deviation (even by probing questions) would constitute a breach of trust because the researcher had already made full disclosure of the study as part of the information sheet prior to the involvement of the selected librarians/ managers in the study.

3.8.2 Transferability

Transferability (external validity in quantitative studies) is based on the applicability of the current study in different contexts with similar conditions as those that existed at the three research sites where it was originally undertaken (Cozby 2020; Taylor et al. 2016). The external dynamics attendant to the current study limited the transferability of the study's findings. However, the qualitative proportionality factor (see sub-section 3.5.3) implies that the study accentuates the 'case' (i.e. qualitative manifestation of the problem) rather than its quantification, which was 'compensated' with the assessment questionnaire/ survey. Externalisation of the results of the study could be impeded by the fact the South African higher education ecology is characterised by 26 institutions whose academic traditions are not necessarily monolithic (e.g. medical, technology and research universities). However, all the study participants were only representative of the research university libraries, which could pose generalisation challenges.

3.8.3 Dependability

Dependability (reliability in quantitative studies) refers to the extent to which the study and its attendant processes could be depended on, as a result of the stability and consistency of the research instruments (Rubin & Babbie 2016; Leung 2015). The researcher applied an audit trail mechanism and reflexivity to achieve the dependability of the study. All the investigative and methodological processes and methods were documented (audited) to provide a 'trail' or record of *why* and *how* certain decisions were taken throughout the study. Other than the research report itself, the documentary evidence or record of the study is of particular significance for researchers interested in

undertaking studies similar to the researcher's (Flick 2019). Most importantly, the researcher applied reflexivity (self-monitoring) throughout the study by precluding her preconceived views, especially in her engagement with the participants. This is particularly helpful in qualitative studies, due to the salience of participant perspectives as they render the relevant segment of the collected data as truly ethnographic (Creswell 2014; Koonin 2014).

3.8.4 Confirmability

Confirmability (objectivity in quantitative studies) defines the verifiability of the research findings; that is, the extent to which the research processes and findings could be corroborated or verified (Walliman 2018; Edmonds & Kennedy 2017). The study achieved its confirmability largely by means of member checking and peer debriefing. During, and after the data collection stages, the researcher consulted the three librarians/ managers to ensure their corroboration of her interpretation of their input through the interviews and questionnaires, as well as the field observation notes. To some extent, this is also indicative of the level of trust between the researcher and her participants. Furthermore, the researcher consulted with two experienced RC library practitioners to obtain their independent professional evaluation of the study, its methodological orientations, as well as the findings and recommendations made.

3.9 Summary

This chapter discussed the research methodology underpinning the study, including the research paradigm, approach, design and case study design. In addition, the methods of data collection and analysis were also discussed, as well as the sampling context of the study. Furthermore, the use of the quantitative and qualitative research instruments was explained, and the chapter concluded with a discussion of the measures of trustworthiness entailed in the study to ensure its scientific rigour and integrity. The next chapter is entirely focused on the presentation of the data collected primarily through the interviews, observations and assessment questionnaire.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Introduction

The previous chapter presented and discussed the methods by which data was collected in order to develop an evidential framework of the study as articulated in the present chapter. Whereas Chapter Four could be construed as providing the *pre-analysis* domain of the collected data in terms of *how* it was acquired, Chapter Five presents the *actual* data itself in analytic mode. In that regard, the previous chapter becomes a precursor to the current, which sequentially and logically presents and analyses the self-same data whose modes of acquisition were previously elaborated. The present chapter focuses entirely on the results of the qualitatively and quantitatively generated empirical data collected through questionnaires, semi-structured individual interviews and field-based observations.

It is also worth mentioning that the substantive worth of each data collection instrument supersedes the number of participants from whom data was collected using that particular method. Notwithstanding the varying methods of data acquisition, they are cohesively linked by the core aim of the study, that is, to investigate strategies adopted in converting traditional academic library spaces to the research commons model in South African universities. Therefore, the collected data was fundamentally the researcher's attempt to answer the following three research questions as articulated in Section 1.5 of the study:

1. *What are the strategies for converting traditional academic libraries into the research commons model?*
2. *What are the changes that were engendered by converting from a traditional academic library into the research commons model?*
3. *Which are the challenges encountered during the conversion process from the traditional academic library to the research commons model?*

For purposes of cohesive concatenation, the current chapter is structured according to very important 'logics' (i.e. 'logic' of the participants and 'logic' of the research instruments), both of which are complementary and interdependent, reflecting the researcher's effort to allocate a meaningful synergy of the study's qualitative-quantitative approach (Matua & Wal 2015; Aneshensel 2013). In terms of these two

researcher-coined 'logics', the *logic of the participants* entails the predominance of particular views, experiences and perceptions of a particular category of participants as reflective of prominence of particular themes in the RC context. Similarly, the *logic of the research instruments* posits that any of the three data acquisition strategies (i.e. questionnaires, interviews or observations) could have a significant effect on the other. For this specific reason, the chapter is sequentially organised such that it presents and analyses three prominent aspects of the collected and analysed data: the institutional milieu/environment; the quantitative (questionnaire-based) domain; and the qualitative (interview- and observations-based) domain.

4.2 The Institutional Milieu/ Environment

This section describes the institutional milieu or environment in respect of the characteristics of the participants and the participating higher education institutions as represented by their librarians/ managers. While they justify their inclusion in the study according to the researcher's pre-determined criteria, these characteristics also portray the ambience of the environment within which collaborative interactions occur among the various library stakeholders; the students as the primary users, the librarians/ managers as RC change facilitators, and the academic staff as providers of the programmatic (curriculum-related) opportunities requiring execution related activities through research using the RC digital multimedia facilities (Ojennus & Watts 2017).

4.2.1 Characteristics of the Participants

In this case, 'participants' specifies the three RC managers/librarians of three university libraries in Gauteng Province that have converted their traditional library spaces into the research commons model. Consonant with the ethical requirement for the protection of participants' confidentiality and anonymity, the researcher used pseudonyms (e.g. RC1, RC2 and RC3) to protect both their identities and that of the institutions and their libraries. 'RC' connotes 'research commons' or a specific institution that has metamorphosed to the research commons model.

4.2.1.1 Participants' biographical data

The most critical biographic information of the participants related to their educational qualifications or background, work experience as librarians, as well as extent of involvement in any Research Library Consortium (RLC) programmes. Table 4.1 below represents the demographic information derived from the participants (librarians/ managers).

Table 4.1: Participants' biographical data

Library Code	Qualification	Experience	RLC Programme
RC1	MA (Information Science)	29 years	Yes
RC2	BA & Higher Diploma Librarianship	31 years	Yes, Internship Perdue University
RC3	MA (Information Science)	24 years	No

An extrapolation of the information in Table 4.1 indicates that 2 (two, 67%) participants (RC1 and RC3) had MA (Master of Arts) qualification in Information Science, which is a relevant factor in terms of the inclusion criteria mentioned in sub-section 3.5.2. One participant (n=1, 33%) had a postgraduate Diploma in Library Information Science and an internship from a US university library. However, this particular participant (RC2) had the advantage of work experience compared to the other two who were more qualified. Also, the RC-related experience gathered from an international university library by RC2 augurs well for changes necessary for the local reconfiguration of public academic libraries (Seal 2015b). Overall, both the educational qualifications and additional programmatic exposure and experiences of the three participants are an indication that librarians working in the RC generally upgraded their qualifications (Kercival 2011; Daniels et al. 2010; Walker 2009).

It is also instructive that the participants had vast work experience, ranging from 24 years to 31 years. RC1 and RC2 have been working as liaison librarians for more than 20 years, while RC3 has 20 years' experience as a reference librarian. The overall work experience of the participants is most useful, as it locates them as aptly suited for involvement in the study on account of the collective institutional memory they have on both the pre- and post-RC eras. Therefore, they are a reservoir of accumulated knowledge and experience over the years, and able to integrate a functional RC model into their institutional vision and missions aligned to the externally driven changes occurring in the higher education sector as a whole (Mwaniki 2018).

4.2.2 Characteristics of the Research Commons Users

The characteristics of the RC users particularly focus on the dominant category of recipients of services provided through the RC (Ojennus & Watts 2017; Saroja & Minhaj 2015). Table 4.2 below indicates the characteristics of the users from the three public academic libraries involved in the study.

Table 4.2: Characteristics of the RC users

Library Code	Description of Users	Percentage
RC1	Postgraduate, research fellows, Staff	30%
RC2	Postgraduates, research fellows, Staff	55%
RC3	Postgraduates, research fellows, Staff	15%

The responses in Table 4.2 above show that the postgraduate students, research fellows and staff were the dominant users at the three RCs largely served. The percentages indicate the enrolment of postgraduates in proportion to the overall institutional student body. In this regard, RC 2 had the largest number of users (55%), followed by RC1 (30%), and RC3 (15%).

Most of the Master's (MA) and doctoral students at the three universities in this study are classified as *distance learners* because they do not attend formal (contact or face-to-face) classes. RC3 is a single-mode institution, providing services through distance, electronic mode of teaching. The students at the three institutions come from far, and mostly working-class backgrounds. They largely access all university services (including the RC) and resources electronically. According to the DHET's (2017) figures for Master's and Doctoral enrolments (for purposes of the current study), RC1 had 3 936 postgraduates; RC2, 7 679 and RC3, 8 451 postgraduates

4.2.3 Characteristics of the Participating Higher Education Institutions

The characteristics of the three RCs are vital to this study. Among other factors, such characteristics provide a degree of understanding not only the history of their libraries, but also the extent to which these libraries are compliant or non-compliant with the transformation of their libraries to accommodate the changing needs and learning preferences of their students as their primary users (Fox & Doshi 2013). In this regard, the characterisation of the three RCs is important for determining the relevance (or otherwise) of services provided to their users, as well as contributions to the research throughputs and outputs of their parent institutions (Fox & Doshi 2013). Attention is also drawn to the fact that the characterisation of the three higher education institutions in this section is different from the case setting discussed in sub-section 3.5.3 (p. 55). Whereas the case setting provided a broader milieu of the Gauteng Province higher education landscape, the characteristics of the participating higher education institutions specifies the dynamics of interest to the researcher attendant to only the three university libraries taking part in this study. Therefore, the latter encompasses units of analysis such as location, teaching modes and academic programmes. RC1 and RC2 are dual

mode institutions, providing their teaching through contact and distance learning, which is largely reliant on technology.

The three higher education institutions are multi-campus structured institutions, mainly serving RC as the prototype. At both RC1 and RC2, MA degrees are offered for both full-time and part-time courses, either through a research-based or a course-based programme. However, at RC3's postgraduate degrees are research-based. RC1, RC2 and RC3 have a good proportion of postgraduates who treat their studies as 'full-time' only because they are in the RC daily, and not necessarily because they attend full-time contact classes.

The SA government has been striving to increase research activities in universities since 1994. Thus, certain metrics were instituted to monitor progress, resulting in institutions priding themselves with NRF rated researchers. For the study's purposes, RC1 has 171 NRF-rated researchers; RC2, 517; and RC3 with 194. RC3 has the biggest library per square meter size among the three RCs, biggest number of staff, budget, database subscriptions; as well as electronic and print section library collections. In terms of NRF ratings, it would have been expected that RC3 would surpass the other two RCs. Instead, RC3 is surpassed by RC2's NRF-rated researchers/ scientists. All three participants could not explain their budget allocations due its centralised control, in terms of which the purchasing of e-resources is prioritised. Statistical software and reference management tools are bought from either collage of graduate or research office budget.

The average library operating hours per week at the three institutions is 101.6 hours, based on the following: RC1 is 110 hours; RC2, 95 hours; and RC3 is 100 hours. RC1 is open for 24 hours on Sundays, and RC2 library study facilities are also open 24/7. An indication of the operating hours is significant. Among other considerations, the operating hours also reflect on the gate count indicators as much as it reflects on the ease of comfort and access; as well as the availability of resources, materials and services to the level of user satisfaction (Kercival 2011). Undeniably, the size of library collections also indicates the extent to which library services support their parent institutions' research profile (Opoku 2013). Table 4.3 below illustrates the size of the library collections at each of the three RCs.

Table 4.3: RC1, RC2 and RC3 library collections

Items	RC1	RC2	RC3
Print books	650000	1399202	1 500 000
Print journals	552	398	4000
Databases	268	79	397
e-Resources	452637	292 779	300 000

In terms of print books, RC 3 (which opens for 100 hours per week as indicated in Table 4.2) has the largest print books (1.5 million), print journals (4 000) and databases (397). From the study’s perspective databases and e-resources would be of critical significance, in terms of virtual orientation that is so pivotal to the RC architecture (Soergel et al. 2017).

4.2.3.1 Library facilities

Library facilities are a cogent determinant of the value of the library to its users and the institutional vision and mission (Silka & Rumery 2013). It is for this reason that the study sought to determine the state of affairs at the three RCs in this regard. Table 4.1 below depicts the state of library facilities at RC1, which reflects the largest print book collection in Table 4.3.

Table 4.1: RC1-library facilities

<p>Floor 2</p> <p>Learning commons dedicated to under undergraduates</p> <p>Offering Internet access for 45 minutes per session</p> <p>24 hours study facility</p> <p>Disability facilities</p> <p>Research commons</p> <p>Free Wi-Fi connection, Printing and Photo copying</p> <p>Individual study area (No noise)</p> <p>Group study area</p> <p>Auditorium/ seminar (lecturing in the library)</p> <p>RFID system for self-service</p>

In addition to having the largest print book collection, RC1 is also shown in Table 4.1 above as sufficiently positioned to the demands of a conducive and functional RC library. Among other functionality requirements, RC1 has disability facilities, which shows its serious commitment to serving all users in a non-discriminatory manner. Table 4.5 below illustrates library facilities at RC2.

Table 4.2: RC2 library facilities

Floor 3	Floor 4
----------------	----------------

West Wing	Photocopiers	Floor 4	A trolley for research books	
	Makerspaces		English and French Dictionaries	
	24/7 Study facilities	Research Commons consist of:	Students' assistance offices	
	Kiosk		20 sitter seminar room	
East Wing	No books		2 x 10 sitter group rooms	
	Converted Reference desk		6 sitter individual room	
	Libby the robotic reference librarian		Individual quiet study cubicles	
	Staff offices		6 x 3 sets of carousel PC Lounge	
Learning Commons consisting of:	PCs workstation and printers		Kitchenette	
	Study tables		RC coordinator office Students assistants office	
	State of the art Training room		Photocopier	
	Office for statistician students' assistant		Telephone room	
				A rack for funding adverts

In Table 4.2, it is evident that the RC is housed in the third and fourth floors of the library building. It is also evident that the floor plan and spatial arrangements are designed to locate various RC elements for the comfort of the users (Seal 2015b). Figure 4.1 below indicates the library facilities at RC 3.

Figure 4.1: RC3 library facilities

In Figure 4.1 above, RC3 appears to be spartan, compared to RC1 and RC2. In both floor 3 and floor 4, there is no signage for elementary issues such as noise, telephone and eating and drinking. Ironically, this is at the academic library whose librarian has postgraduate qualifications and 24 years of librarianship experience. However, the fact that the self-same RC3 has a 15% postgraduate user service provision, could imply that the spartan conditions by the effects of their relatively lower gate counts. On the other hand funding issues could also be a contributing factor (Tassone et al. 2018). The next section focuses on the questionnaire-based responses of the participants.

4.3 Quantitative Data Presentation and Interpretation

The questionnaire (which was emailed to participants prior to the interviews) appears as Appendix G and is demarcated into 7 (seven) specific focus areas: change in gate counts; importance of various library services; assessment/ evaluation of services; importance of spaces; foremost library activities; participant perspectives; and general or additional librarian input/ perspectives.

4.3.1 Possible Changes in Gate Counts

Participants were asked to respond to the question: *How would you describe the change in the gate count after implementation of the research commons model in your library?*

Participants were asked to select from the five options: decrease; no increase; moderate increase (less than 20%); medium increase (21%-30%); and significant increase (more than 30%). The participants were afforded the opportunity to reflect on, and examine the library gate data before and after the RC compliant renovations. Figure 4.2 below represents possible gate count changes heralded by the RC conversion.

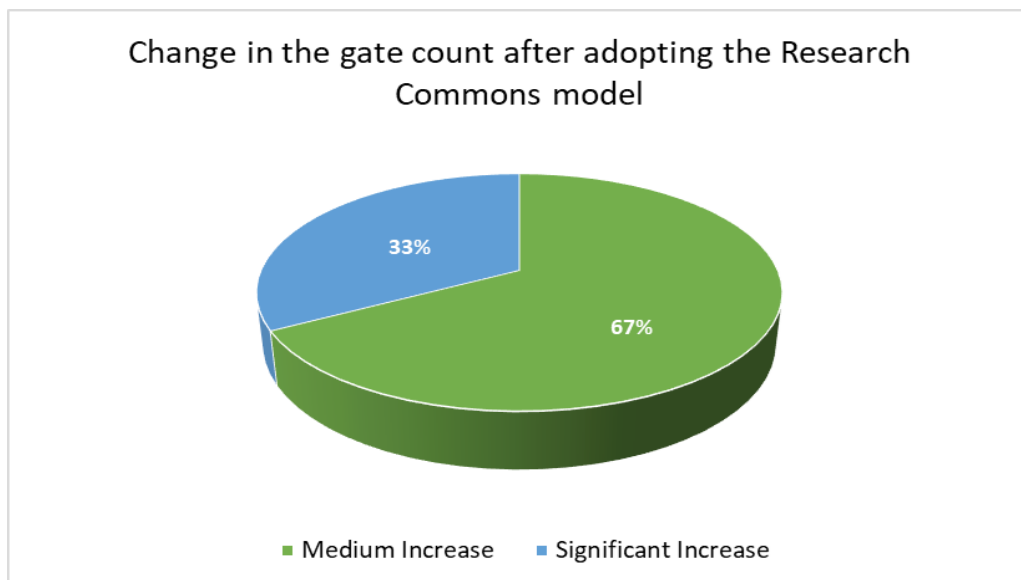


Figure 4.2: Increase in library gate count

As shown in Figure 4.2, RC1 reported a significant increase (more than 30%) in its gate count, while RC2 and RC3 reported substantial increases in theirs after implementation of the RC. It is significant that all three RCs showed varying degrees of increase, rather than decreases. The increases show that, applied properly, the RC model carries prospects for the improvement of library services (Bagudu & Sadiq 2013).

4.3.2 Importance of Various Library Services

Participants were asked to respond to the statement: *Please rate the importance of the following services in the library.*

Using the 5-point scale, participants were to choose a single option from: library services, spaces and resources in terms of very Important (5); important (4); somewhat important (3); not very Important (2); and not applicable (1). In essence, the question required the participants to rate the importance of the services in the library, such as research commons, research support, IT support, writing support, tutoring, plagiarism support, 24/7 access to the library. Figure 4.3 shows the importance of various library services.

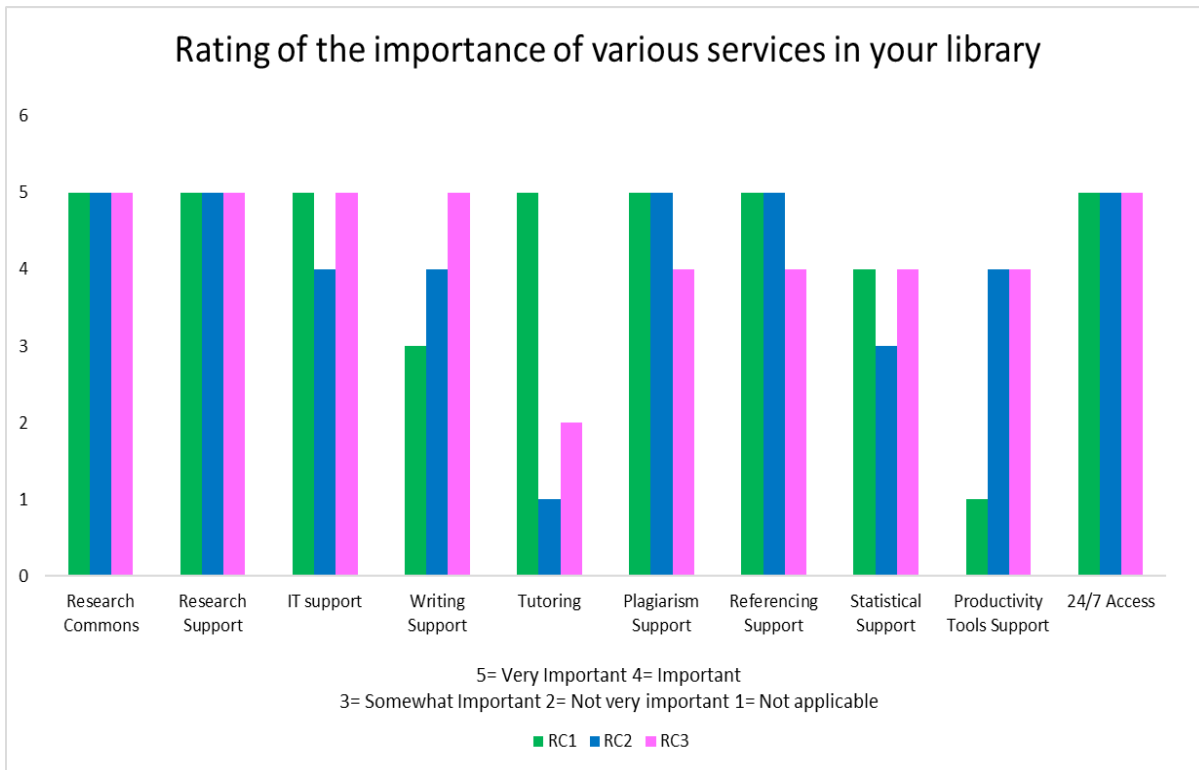


Figure 4.3: Importance of research commons, research support and 24/7 access as important library services

The availability of a range of RC services enhances both the reputation of the library and quality of its services (Raju *et al.* 2016). Extrapolated from Figure 4.3 above, is the realisation that RC1, RC2 and RC3 rated research commons, research assistance and 24/7 access as “very important”. RC1 rated productivity tools support as “not very important” while RC2 and RC3 tutoring as not particularly important. This range of responses could also be viewed as reflective of the nature of the clientele of these RCS.

4.3.3 Assessment/ Evaluation of Additional Services

Participants were asked to respond to the statement: *Please rate the importance of the following resources in your research commons.* As indicated in Figure 4.4 below, the third question required participants to rate or make an assessment (evaluation) of their libraries in respect of a range of variables.

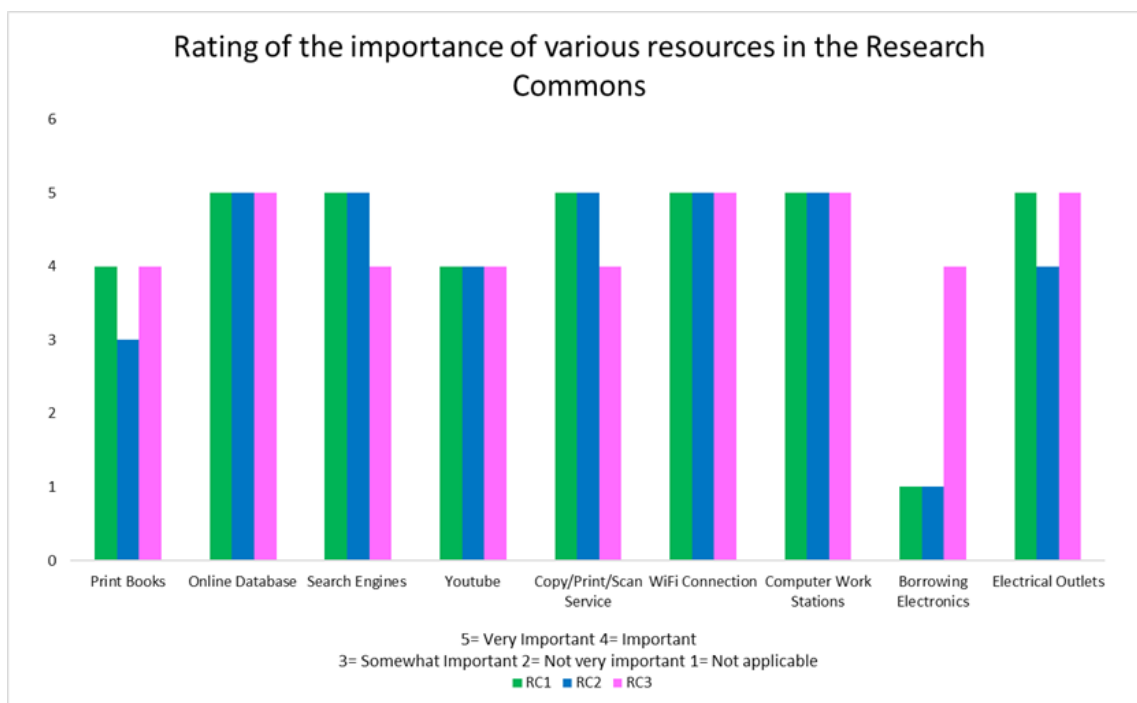


Figure 4.4: Importance of online databases, Wi-Fi connection and computer workstation

From Figure 4.4, it is clear that all three libraries rated print books as “important”, which is confirmed by the print books statistics in Table 4.3. Meanwhile, RC1 and RC2 rated borrowing of equipment as “not applicable”, but RC3 rated borrowing of equipment as “important”. The findings show that the majority of library users borrow books. Alternatively, it could also imply that the RC’s electronic facilities and equipment are insufficient to cater for the majority of users.

4.3.4 Importance of Spaces

Participants were asked to respond to the statement: *Please rate the importance of the following spaces in your library.*

Similar to the previous question, participants were asked to rate the importance of a variety of spaces in their RC facilities, such as quiet study area, group study area, research commons, café, media centre, training rooms, auditorium and flexi space/furniture. RC1, RC2, and RC3 rated quiet study rooms and research commons “very important”. Figure 4.5 below represents the important library services from the participants’ viewpoints.

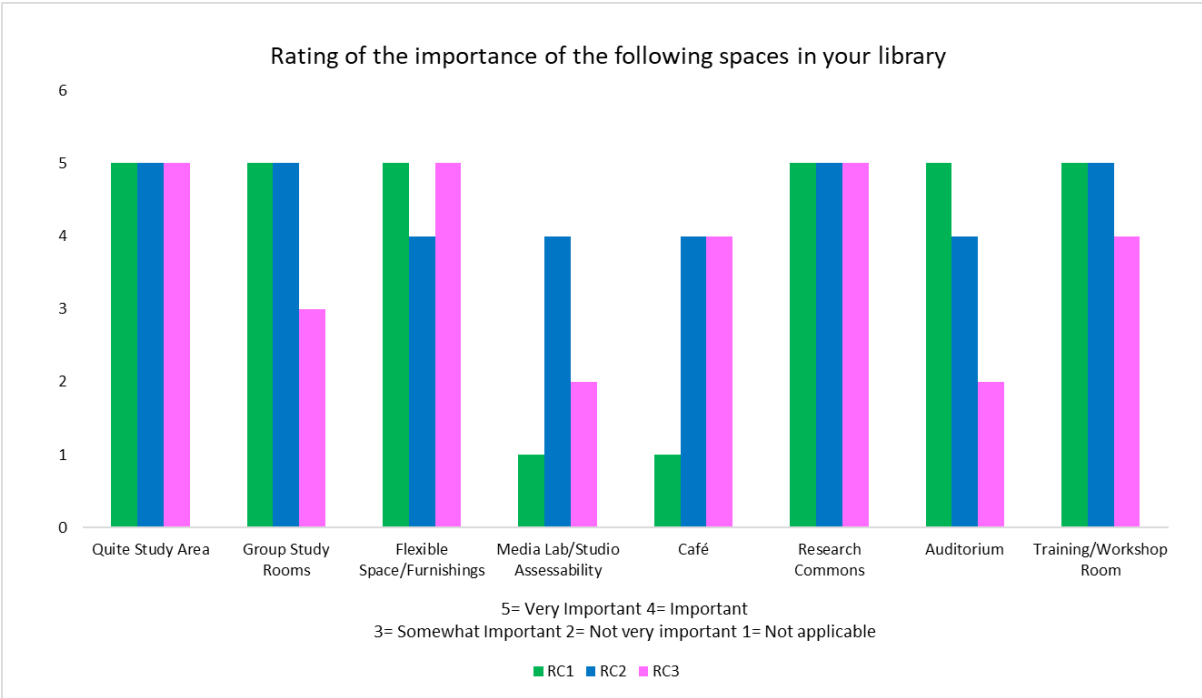


Figure 4.5: Important library spaces

Figure 4.5 above shows that RC1 rated ‘café’ and ‘media centre’ as “not applicable”, while RC3 rated ‘media lab’ as “not important” and RC2 rated ‘media lab’ as “important”. It is prominently clear that each RC rated the different RC elements according to the user perspective rather than the facilities perspective. The former encompasses the nature and profile of the users, while the latter entails the nature of the RC in terms of its funding (Young & Kelly 2018; Turner, Welch & Reynolds 2013).

4.3.5 Foremost Library Activities

Participants were asked to respond to the question: *What are the top two activities of the postgraduate students when they visit the research commons?*

For this question, participants were to choose only 1 (one) from 10 options exploring 2 (two) of the foremost activities that are crucial to postgraduate students in the library. Table 4.6 represents the two foremost RC activities.

Table 4.6: Top two activities in the research commons

Library Code	Top Two Activities
RC1	Research & use of library Wi-Fi
RC2	Research & use of computers, printers and copies
RC3	Research & research assistance

From the responses in Table 4.6 all three participants indicated that research was the foremost activity, followed by Wi-fi access at RC1; while RC2 indicated the use of

computers, printers or copiers/scanners as their second foremost activity, and research assistance was RC3's second. It could be concluded that the confirmation of research as the foremost activity by all RCs, was further confirmation of the libraries' parent institutions as "research universities" according to the DHET's categorisation of higher education institutions. Therefore, the RCs were confronted with the task of ensuring that the research profile of their universities is enhanced with the provision of services commensurate with these expectations (Beagle & College 2011; Colvin 2010).

4.3.6 Participant Suggestions

Participants were asked to respond to the question: *Are there any comments/suggestions that you would like to share?*

In the interests of variability of questions and affording participants' subjective views, the above open-ended question provided them with an opportunity for additional information not addressed in the preceding five questions. Their responses were recorded as follows:

We have noted that the refreshments (café) are needed for this group of clients as they work for long hours and we also noticed the importance of opening for 24/7 hence we extended our operation Sundays we open 24 hours. What is tricky about the 24/7 opening is the operational management integrities including staffing(RC1).

At first librarians had no clue about the concept. So none of us thought working in the RC will contribute positively to our career growth. I thought adding an itinerary program to the postgraduates' tide schedule will help them to relax "they love it". We also have a notice board that includes (site viewing), rack for newspapers, magazines and bursary, scholarship and conferences(RC2).

Virtual communication platforms such as (skype, MS Teams) even though we highlighted the café as important we need a kitchenette as substitute because right now there is nothing of that sort the vending machine that were brought to the library did not last a week because they were contradicting the no eating policy. But most of the postgraduates visit the RC after work the staff café is long closed by then (14:00PM). Multiple Photocopiers machine, that includes scanning to email for academic purposes such as applications (bursaries, scholarships)(RC3).

The above-cited responses indicate that there is general acceptance of the RC model, notwithstanding that it was not clearly understood at its inception at the various academic institutions. However, it should be noted further that the suggestions above also show that the prioritisation of library services and facilities is not monolithic, but differs from campus to campus (Covert-Vail & Collard 2012).

4.3.7 Participants' Additional Information

Participants were asked to respond to the statement: *Please provide any additional information you may have.*

Similar to the preceding question, the above-stated questionnaire item premised on participants' own views they may not have mentioned previously (in sub-section 4.3.6). In this regard, the participants' additional/general information related to the library budget, staffing and operating hours. Taken together both questions in the preceding and current sub-sections, there is still an indication that the librarians' conceptualisation of priority library services is not uniform, as reflected in the evaluation responses of figure 4.2, figure 4.3 and figure 4.4.

4.4 Qualitative Data Presentation and Interpretation

Section 4.3 focused primarily on the presentation of the responses (findings) accruing from the questionnaire mode of enquiry whose fundamental goal was to evaluate the nature and range of library services provided at the three RCs involved in the study's empirical focus. Complementarily, the current section premises on the interview-based protocol appearing as Appendix F, from which only 13 items (questions 8-20) were asked in exclusion of questions 1-7 to obviate repetition of issues mostly addressed through the questionnaire.

4.4.1 Interview-based Data Presentation and Interpretation

The interview took place on January and February 2020, between 10:00 and 12:00 AM. The interview-based data emanated from question 8-20 of the interview items, from which 4 (four) dominant themes and their associated categories emerged. Be it noted that the categorisation factor is necessitated by the inclusion of more than a single question for each thematic category. Also noteworthy is that the first three thematic categories are sequentially linked to each of the three objectives depicted in Table 1.1 (p. 10) of the study. The fourth thematic category does not represent a research objective, but an opportunity for participants' additional reflections on some issue(s) that the researcher may have overlooked (Creswell 2014). The six thematic categories are:

- Requisite strategies for RC conversion to take place (category C);
- Requisite changes in RC conversions (Category D);
- Challenges encountered in RC conversions (category E); and
- Reflections on RC strategies used (category F).

4.4.1.1 Requisite strategies for research commons conversion to take place

In tandem with Objective 1 of the study, this section sought to explore strategies for converting a traditional academic library into the research commons model. This objective was covered by questions 6,7, 8, 9, 10, 11, and 12.

Q6: Participants were asked to indicate what caused them to change from a traditional library model to a research commons model? The following reasons were provided:

I guess it was more of the global trends and the fact that the library should adapt its services to postgraduate students in the technological age(RC1).

The library management detected the postgraduates changing needs which required the library to provide different services and resources. At that time library management was positioning the library as a partner not a support service. This meant the library could contribute equally to the university goals to increasing the research outputs and postgraduate students' throughput(RC2).

The nature of the world of work requires conducive environments to enable high productivity in science. To support the University's mandate to increase research output. Students needed a creative space to encourage innovative thinking. We had to follow best practices in South African Universities which was also difficult to us considering that we are catering for remote students who come from disadvantaged backgrounds therefore a dedicated space fully technologically equipped was necessary, but it is defying our mandated. Like every library we accommodated the library space trends(RC3).

Collectively, all responses to question six reflect that some of the factors influencing them to change included global trends, changing postgraduate needs and the world of work, among others. These reasons cohere with those propounded by scholars such as Corral(2018),Quagliaroli (2017), Cicchetti et al. (2015)and Beagle (2012).

Q.7: Participants were asked to describe how they introduced the RC concept to their university leadership?The following reasons were provided:

Interestingly our university leadership thought that it was time to modernize the library to support the university mission. They also realised that the millennial learning styles required a space that is fully technology integrated especially because our university was becoming research inclined to meet the DHET and to benefit from the NRF subsidy. For our library it is another way around. Thereafter the university contracted a director who managed the library space project and after the implementation the contract ended, the project ran parallel to the day to day library operations(RC1).

I only got involved with this RC project after the RC building was complete, and then I was appointed to manage the RC while continuing working as an Information Specialist.It is

unfortunate that none of the forerunners for this project are around to answer this question, they are all retired. But all I can say is that this happened when three other universities in SA had taken a lead to form the Research Library Consortium (RLC) to redesign and repurpose their university library services through the Carnegie donor support. Our library joined the consortium and sold the idea to the university leadership. We then followed the RLC prescribed program to upskill librarians “that is why I attended the RLC program in Mont Flair and went overseas for further induction”. We followed the RLC proposed plan to establish the research commons in our main campus library engaging with other member universities locally while learning from the international library space trends. Our university leadership added more money to top the Carnegie funding and our library was redesigned and repurposed to what it is today(RC2).

There was no consultative process to introduce the concept. Staff had to adapt to what was put on the table. The research space was marketed to faculty members by the subject librarians as a new dedicated space for postgraduate students”. Perhaps it is worth mentioning that in the early 2000, the DHET promised to rebuild the library whether that was for the same purpose of repurposing the library or not we will never know because the project did not materialise(RC3).

Collectively all responses to question seven show that factors such as the influence of university leadership and the effect of educational qualifications enhanced their selection or appointment to the RC implementation process.

Q.8: Participants were asked to describe the most significant changes they have experienced since transitioning. The following explanations were given:

More dedication for Postgraduate throughput, therefore a dedicated, open modern colourful space for research was built; that integrated technology, it housed multifunctional spaces such as quiet spaces, group discussions, seminar room, individual computer workstations and printing. We are u(RC1).

We are putting a lot of effort in providing more dedicated support systems to our postgraduate students and tailored research related workshops, so that we can assist the university to achieve the required pass rate (throughput) to gain subsidy from DHET and NRF. IT staff were placed to support postgraduate students. Librarians were upskilled through the RLC program to help them to understand research methodologies and to support researchers. State of the art training room and auditorium at level three were built(RC2).

Besides the fact that postgraduates were becoming more independent thinkers whose reliance on that reference enquiries were minimised, while research related enquiries were increasing, and it is the academics job more than librarians the conversion of a library space into a dedicated research space was quiet bold (RC3).

Collectively, all responses to question eight reflect the significant changes as including dedicated library staff and postgraduate commitment to research, which is in agreement with propositions advanced by Brown *et al.* (2018) and others.

Q.9: Participants were asked: *to describe changes, they have experienced in their positions and work responsibilities.* The following reasons were advanced:

Workshop for postgraduate students have increased, collaboration is the key. Creating and populating content on Libguides(RC1).

If I compare my information specialist job and the RC coordinators job, the information provision was at the centre of what I did and training my clients on how to access information from subject related databases, whereas now my role and responsibility as a RC coordinator, has provided greater focus on assessing the needs of postgraduate students and organising research related services, resources coordinating research workshops for the whole university being at the centre. As well as advising researchers on publishing and hosting Scival, incite workshops not only for our researchers but local university research communities and librarians alike. Collaboration with the research office, and I also manage the student assistance(RC2).

RC librarians are working on referral basis. This is contradicting what is happening on the floor because clients expect to be assisted in real time to apply technological tools and software to their projects, that is beyond information provision queries varies from research methodology, publishing, intellectual property rights, plagiarism, thesis submission guidelines, advanced use of MS Office package, thesis formatting and writing lab. Because our institution is remotely operated it is important that we do not duplicate jobs because that will confuse clients(RC3).

Collectively, all responses to question nine reflect that the changes experienced included postgraduate workshops and introduction of technology into the library service delivery mode, among others. Both IT and postgraduate development are viewed as critical to the RC (Brown et al. 2018).

Q.10: Participants were asked *to describe the changes they experienced in working with postgraduate students.* The following explanations were provided:

Students really try to behave professionally and independently when in the space. They can see that they are different from the lot and they enjoy the privilege(RC1).

The postgraduates portray a lot of anxiety. We have experienced several incidents and there were instances where medical doctors diagnosed students with anxiety attacks.” We have experienced students fall out. Often, they demonstrate a high level of education, creativity and intuitive learning(RC2).

Postgraduate students are now more self-sufficient, this is evident as reference enquiries are minimised. We have noticed a significant increase of the number of postgraduate students that are studying “full-time” coming from neighbouring countries. They treat the RC as their office and they find solace from each other(RC3).

Collectively, the responses to question ten indicated that the relevant experiences included the observation that there was improvement in the postgraduate students' confidence to conduct research, which is a perspective corroborated by Covert-Vail and Collard (2012) amongst other scholars.

Q.11: Participants were asked to *describe the most common student activities in the RC*. The following answers were provided:

Research, access to the internet, WI-FI connectivity and group discussions either with peers or supervisors(RC1).

Research, thesis and dissertation writing, article writing, discussions, interaction via video calls. The video calls are related to postgraduates and supervisor locally and internationally. PHD students' defence, either with the lecturer / examiners or students in different locations(RC2).

Research, plagiarism and referencing support(RC3).

The responses to question eleven reflect that IT- and thesis-related activities were the most common activities, as supported by Edmunds-Otter (2017), Daland *et al.* (2016), Covert-Vail & Collard (2012) and others.

Q.12: Participants were asked to *describe the most common faculty activities in the RC*. The following answers were proffered:

Meetings with supervisors and group work(RC1).

Video calling, meetings and article writing(RC2).

Supervisors use space for supervision, meetings and to concentrate on publication, conference papers or simply as a quiet space to read and marking. we have observed that of the academics from other campuses and those who are on sabbatical leave also use the RC as a working space(RC3).

The most common faculty activities were cited as focused on student-supervisor work to ensure the research development and capacity of postgraduate students. Such an orientation is reflective of the collaborative effect of faculty, students and library staff working together for mutual benefit (Darch & de Jager 2012).

4.4.1.2 Requisite changes in research commons conversions

In tandem with Objective 2 of the study, this section sought: To explore those changes that are needed for converting traditional academic library into the research commons model. This is represented by Questions; 13,14,15,16 and 17.

Q.13: Participants were asked: *to show changes made to the physical space.* The following reasons were advanced:

We added discussion rooms, soft seating. We also installed a gate access to the space to allow only PG (postgraduates) access in the RC. We added bright fresh colourful walls and furniture(RC1).

Card access for all relevant parties. A complete new fresh look with new colourful furniture, computers, large space desks, art works, new colour coordinated wall painting. Apparently these colours are chosen because they have a relaxing effect.” “I am not a colour person for me is either I like the colour or not my office has all the three colours in all the walls that is purple, orange, beige and green(RC2).

A dedicated space was created where students living with disabilities were provided technologies that allowed them to perform their school assignments and librarians on site to advise and assist. A relaxing quiet space, (lounging corner with couches)(RC3).

Collectively, all responses to question thirteen reflect that changes referred to, included facilitation of disabled student's easy access to the library and aesthetic improvements for attractiveness. This is consonant with the 'third place' perspective to encourage users to feel 'at home', away from home (Pennington 2016; Kim 2016; Hanson & Abresch 2016; Cunningham & Walton 2016; Gould 2011).

Q.14: Participants were asked *to show changes made to the library services.* They provided the following reasons:

We introduced scheduled trainings sessions tailored for postgraduates; we also run special research workshops as a service.” “Besides the LibGuide that offer online training and how to guides, recently we provide training via zoom. We also provide access to statistical software, reference management tools, and productivity tools. We schedule all our training via LibCal hosted on LibGuide and booking is done electronically(RC1).

Postgraduates who are using the RC are from different parts of Africa. Therefore, they kind of study full-time, which is not possible for a postgraduate degree. The RC is their second home therefore we assess their needs and provide necessary and relevant services to suit their needs.” “The research subject guide is used to archive online training videos and training manuals. We use an online training booking system. We offer access to statistical tools such as R, SAS, SPSS, ATLASTi. Referencing tools such as EndNote, Skyping through Vidyio app, televisions, white boards, 3D scanner, and photocopiers for printing scanning. Telephone facility

for easy access of lecturers, and White board for discussions purposes. In addition, e-books on research are encouraged and exhibited on the subject guide(RC2).

A working space dedicated for research was created(RC3).

As a whole, the responses to question fourteen reflect that changes referred to, included the facilitation of communication between the students, the library and the university through technologically driven mechanisms. This shows the criticality of ICT (virtualisation) as the foundational pillar of the RC model (Harrison 2018; Dowson 2016b).

Q.15: Participants were asked *to show changes made to the library collection.* They provided the following reasons:

We started buying research support books and kept them in the RC. We are prioritising e-books over print copies(RC1).

Latest classics of research related print books are kept on a trolley in the RC. We included English and French print dictionaries to accommodate West African students. We have also expanded our e-books collection(RC2).

We own more than 3 000 000 hardcopies, we focused on purchasing research related books. We increased our subscription to research related e-resources (databases)(RC3).

Changes made to their respective library collections included new print materials for research and language development (English and French, for instance). Such an orientation is notable, because it shows that RC, while ICT-focused, also has a ‘ripple effect’ on **all** other activities and processes of the library (Banks & Chikasanda 2015).

Q.16: Participants were asked *to indicate the changes made to purchasing and budgeting.* The following reasons were advanced:

The university leadership were decisive about the fact that the library needed to be modernised to meet the millennials’ needs and learning styles. Therefore, the university provided the library with the necessary resources including the budget required to redesign the library. That is why we were not a full member of RLC. For us the project was driven by the university not the library(RC1).

Our library is using a centralised budget model. For the conversion the RLC received a Carnegie funding of which the university leadership topped-up for the library management to achieve its goal of redesigning and repurposing the library to meet the university vision” “There is no specific budget allocated to the RC. That is why I run my workshops on a voluntary basis having good relations with faculties and the university executives most professors are willing to

collaborate while some need to be paid for their services. Because the workshops run for 8 hours, we offer free beverages, and encourage postgraduates to bring their own lunch(RC2).

A special budget was allocated to convert the library space into the RC and to purchase furniture as well as computer facilities, this though did not change the library budget model. Thereafter the RC operational activities were funded from the central library budget(RC3).

According to the responses of the participants, changes made to purchasing and budgeting were shown by the decisiveness of the university in allocating special budgets for library, consonant with assertions by many scholars, including Karasic (2016), Perrault *et al.* (2016) and Cicchetti (2015).

Q.17: Participants were asked: *to indicate the changes made to staffing.* The following reasons were proffered:

The ILL staff moved to the RC since document delivery is service tailored for postgraduates. Writing lab staff move in the RC 2019 I am not sure whether they will continue to stay. The RC manager was hired(RC1).

The RC coordinator and four on contract student's assistants were appointed to do run the RC. Student assistants' role is to compile and update the research subject guide(online training and training manual) among other things "it is nice because they write it from the student's perspective". In 2012 a proposal was written to university leadership suggesting the appointment of the RC manager position. RC staff consists of an IT person and 2 senior postgraduate student assistants. Students assistants work shifts and on consultation(RC2).

The library management deployed a subject librarian to the RC manager position. In 2015 a position for the assistant librarian was filled and 2016 a reference librarian was deployed to become the second RC assistant librarian(RC3).

The participants averred that staffing changes mainly involved the deployment of staff to various positions and roles, such as the contract employment of student assistant librarians and the re-designation of the subject librarian to the RC manager position. Cicchetti (2015), Hart and Kleinveldt (2011) and Beagle *et al.* (2006) concur that such efforts to promote library staff development are commensurate with the advancement of the RC model.

4.4.1.3 Challenges encountered in research commons conversions

In tandem with Objective 3 of the study, this section sought: To identify the challenges encountered when converting from traditional academic library to the research commons model. This is represented by Questions 18 and 19.

Q.18: Participants were first asked to describe the factors that contributed to the success of the transition. They responded thus:

I think that the University research agenda enabled smooth transition. The need for the university to improve their research rankings really helps the library to repurpose itself with a full backing of the executive leadership. Also, the university wanting to increase their postgraduates pass rate. The university leadership saw the library as a strategic partner that will assist to achieve the set goal(RC1).

I am partnering with faculty, research office through research related workshops and knowledge sharing sessions. I am surprised that professors are willing to share knowledge free of charge. The Research office and RC have a good work relation hence after compiling the postgraduates' needs analysis and compilation of the report after workshops are host the information is shared with the client services deputy director and director of the Research office. This trust was built during my years as an information specialist. The university art gallery exhibits their art piece in the RC(RC2).

Postgraduate students were delighted to have a dedicated space and dedicated staff on a full-time basis. Assistance is always available to students(RC3).

The overall responses to question eighteen show that RC success factors include library-university faculty partnerships, the research agenda of the university, and postgraduate students' enthusiasm with the RC conversion, all contributed to the success of the transitioning/ reconfiguration process. Barton (2018) and Jubb (2016) agree that collaborative efforts and joint stakeholder initiatives were pivotal to the success of the RC conversion strategies.

Q.19: Participants were asked to describe factors that undermine the conversion. Their responses were as follows:

Staffing the RC with librarians only can only do so much where research is concerned. Clarification of responsibilities, Noise, Lack of refreshments space. Misinterpretation of the RC concept(RC1).

The postgraduate students appreciate a special, quiet space to themselves. Even though are proud of our RC, it is a well thought through collaborative space the aspect of noise proof was overlooked and it has taken away the freedom of socialising as users should lower their voices when discussing or socialising during their coffee breaks. Noise is the biggest cause of altercations in the RC. Unfortunately, we had to increase the coffee price from R5.00 to R10.00(RC2).

There is confusion in terms of staffing model; we are still not sure whether it's necessary to have staff in the RC "what is supposed to be the job of the RC librarians? Put into practise there were no clear boundaries in terms of the role and responsibilities of the RC librarians, reference librarians and subject librarians and yet their job description are vastly different "I don't know".

The postgraduate students appreciate a special, quiet space to themselves, but they often get frustrated because there is no kitchenette for relaxing while having coffee or lunch. There are no discussion rooms, which result in noise; there is need for space to answer telephone calls as these pertain to academic work too. The fact that librarians provide a referral service is also a barrier. We think the RC concept seems awkward and irrelevant for a distance e-learning environment(RC3).

Collectively, the participants' responses to question nineteen reflect that the RC's success could be undermined by factors such as insufficient acoustics control mechanisms to reduce noise levels (from students), as well as inadequate facilities and amenities within the library space. Such factors could render the idea of the 'third place' ineffective.

4.4.1.4 Reflections on research commons strategies used

This section sought to establish participants' own reflections on strategies that were explored and applied in the RC conversion process. Accordingly, in **Q.20**, participants were asked for their *own reflections on strategies that were explored and applied in the RC conversion process*. They then intimated that:

Introducing the research concept was great but not much planning took place around the research commons activities and how it is going to affect the role of the librarian. Staffing was never really thought through. We are going to build a café in the library which we overlooked in the initial planning of the RC. The RC is an expensive model. Are we financially ready for what lie ahead in terms of sustainability and skills readiness?(RC1)

Initially a senior Information Specialist was assigned to oversee the research commons activities as part of her normal workload. Two IT staff members were appointed on a permanent basis to man the RC and they received a basic library train so that they may attend to basic reference queries. But they soon moved to other jobs as they were de-motivated and did not like working as librarians. The two IT staff members were replaced by the research commons coordinator. When I took over this job as RC coordinator, I appointed four advanced students' assistants. The students' assistants are carefully picked for their IT skills, Interpersonal relations, problem solving, conflict management, writing skills and understanding of the research methodology in addition is their statistical background. The student's assistants work per shifts and consultation. This arrangement is working much better. It was rewarding to be able to replace all the chairs after five years in operation(RC2).

Staffing model, lack of space partition, Lack of consultation caused misunderstanding and confusion of what the concept means or should mean. There are no reasons why the RC should coexist with the traditional service delivery model, hence, the service is seen as an extension of the information/reference desk as a result causing duplication of jobs and clients inconsistency. To us the terms Research Space, RC, library commons and knowledge commons are used interchangeably, and it is simply a space with computers(RC3).

As a whole, the participants' own reflections encompass: wide-ranging issues such as insufficient planning and consultation for relevant staff employment prior to RC implementation; 'hybridisation' of the library space (co-existence of the old and the new in the same building); inappropriate staffing models; and inaccurate conceptualisation of the RC model. The gamut of concerns raised by the participants suggest that continuous staff development and monitoring and evaluations should be undertaken to ensure that both the libraries and their parent institutions do not fall into 'disrepute'.

4.4.2 Observations-based Data Presentation

The schedule of non-participant observations appears in Appendix H, and focus on the researcher's 'silent' evaluation of the three RC institutions' RC conversion compliance or best practices (Walshe *et al.* 2012). The non-participant observation phase of the RC conversion process was undertaken to physically identify services, resources, space usage and the overall RC environment and its possible induced changes. As such, these observations complemented the questionnaires and interviews to reflect both the multiple methods (qualitative and quantitative) *approach* of the study (Acton 2018; Gale *et al.* 2013).

The researcher also observed the postgraduates' interaction with the facility, without any direct contact with them as users. The intention was to validate the participants' answers from the interview with concrete evidence (Creswell & Creswell 2018). The information that was obtained also confirmed the users' behaviour and the changes brought to the physical space, services and resources as a result of the RC conversion process. The observation timeframes varied according to the size of the research commons and duration of the academic calendar. Concomitant responses are demonstrated in tables 4.3, 4.4, 4.5 and figure 4.5.

On the observations carried out, the RCs were embedded in the existing library spaces, and none were housed in separate buildings. The observation also showed that apart from RC2 and RC1, RC3 the social aspect of the commons model was not embraced by RC3. Furthermore, RC3, RC1 and RC2 considered the collaboration activities by including the group spaces and seminar rooms and meeting rooms. RC3 is the only institution that has no facilities for printing, scanning and photocopying machine inside the RC, while RC1 and RC2 have such facilities attached to a personal computer in the RC closer to the users. RC1 also installed a common internal telephone facility in the

photocopy room. RC1 and RC2 are bright and multi-functional while RC1 and RC3 did not cater for eating in the RC. Furthermore, RC3 has a no-phone, no-drinking signage at the RC door. RC1 and RC2 are staffed throughout the opening hours, while RC3 is only fully staffed during office hours. In addition, RC1 and RC2 are fully renovated, while RC3 used drywall boards to divide spaces in the library and added furniture. For RC3 these spaces serve as a computer lab. In all three RCs, the PCs were utilised by users at the PC workstation, in the lounge areas, and individual workstations. Table 4.7 below indicates best practices and availability of facilities in the respective RC or other floors in the library as documented in the researcher's observation notes. The 'tick' marks in Figure 4.7 below demonstrate the prevalence of RC-related resources and facilities.

Table 4.7: Summary of best practices and availability of resources at the three RCs

Best practice	RC1	RC2	RC3
Embedded in the existing library	✓	✓	✓
Separate building			
Playful atmosphere	✓	✓	
Movable and contemporary furniture	✓	✓	✓
Controlled temperature			
Lighting	✓	✓	
Lounge areas	✓	✓	✓
Kitchenette	✓	✓	
Vending machines		✓	
Big tables		✓	✓
Small tables	✓	✓	✓
Coffee tables	✓	✓	✓
Small shelves for research selected	✓	✓	
Print material	✓	✓	
Integrated reference/ research/IT		✓	
Desk			
Phone booths		✓	
Individual	✓	✓	✓
Group	✓	✓	
Collaborative spaces	✓	✓	
Seminar spaces	✓	✓	
laptop spaces	✓	✓	✓
Writing lab	✓		
Research office			
Meeting rooms	✓	✓	

From the list of best practice necessities in Table 4.7, it is evident that all three RCs have the indicated variables equally. However, the later state of affairs should be compared with the information entailed in Tables 4.3, 4.4, 4.5 and Figure 4.5.

4.5 Summary

This chapter presented the results generated from the quantitative data collected through the questionnaire depicting the general library formation about the gate count, library space, services, and resources activities. Semi-structured individual interview questions generated qualitatively-oriented information regarding the RC transitioning process, and how services, resources and space were altered to suit the postgraduate students' needs. Observation of the research environment enabled the researcher's actual and direct experience of the physical spaces, facilities and resources of the three RCs, as well as the users' interaction within the library commons among themselves and with library staff. Document analysis was used to gather general information from the participant's websites, LibGuides, annual reports regarding the conversion process and the background information about the participating institutions. Lastly it depicted the changes that took place in their services, resources and spaces. The next chapter basically locates the findings represented in the present chapter within the broader domain of the study's main conclusions and summarised findings.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The previous chapter presented and discussed the findings as the principal product of both the quantitative and qualitative approaches utilised in the study; that is, the questionnaires, individual interviews and non-participant observations. The current chapter, on the other hand, brings the study to its logical conclusion by determining the extent to which the objectives were achieved, as well as the relevance of the findings to these objectives (Rubin & Babbie 2016; Gale *et al.* 2013). The findings themselves are based on the empirical experiences of the three participating public university libraries that converted their libraries into the research commons service delivery model.

It is mention worthy that the findings of this study (on whose basis the main conclusions are reached) are interstitially linked to the core themes of the study's objectives, namely: RC conversion **strategies** adopted; **changes** needed for RC conversion; and **challenges** encountered in the RC conversion process. In this regard, the achievement and relevance (or otherwise) of the study objectives also demonstrates the extent of the study's contribution and significance insofar as integrating theory and practice, scientific and non-scientific knowledge on the one hand; as well as utopian research and socio-economically valuable research (Candido & Santos 2015). This chapter is divided into two main sections. The first section is a summary of the main conclusions in respect of the research objectives. Section two is a summary of the main findings accruing from the previous chapter. Both these two sections demonstrate the study's extent of utilitarian value, contribution, relevance or significance, which basically converges the objectives and the findings; as well as the recommendations and the researcher's own concluding remarks.

5.2 Summary of Main Findings

The summary of the main findings basically highlights the most dominant aspects of the frequently mentioned issues in the participants' responses to both the (quantitative) questionnaires and (qualitative) interviews; as well as the researcher's own observation of the physical premises of the libraries and their commons spaces (Swanson & Chermack 2013). Accordingly, the main purpose of the study constitutes the unit of analysis to which the summary of the main findings is cohesively linked. In this regard,

the summary premises fundamentally on the strategies adopted; changes engendered; and challenges encountered in the RC conversion process.

5.2.1 Strategies Adopted in the RC Conversion Process

In terms of Table 5.1's contents, the theme of "strategies" appears as both a positive development (for RQ1 and RQ1) as well as a problem (for RO1 and RQ1). For instance, in the initial stages of South African RC conversions, various statements of the participants demonstrate that the concept was not clearly understood. Over the years, the brick and mortar library worldwide have experienced changes in services and resources (Childs et al. 2013). However, the technology-induced changes of the 21st century have compelled a re-conceptualisation of the ways in which libraries serve their varied user backgrounds and circumstances. In this regard, participants' indicated that understanding of the concept was difficult, but measures such as continuous library staff training and development eventually produced the desired effects and outcomes.

Not all libraries have experienced the same success factors because they are at different levels of the RC conversion process. Among other reasons, these discrepant developmental levels were induced by their conceptualisation of the model and their institutional cultures, leadership, size, budget, clientele, and planning. The following summarised factors were also instrumental as strategies for successful RC conversion:

- The Research Library Consortium provided guidelines on RC implementation and offered a readiness training programme;
- Donor funding galvanised the RC conversion process in selected university libraries as a prototype to other local universities, like RC3;
- Additional post-implementation funding for support research book collections for RC1 and RC2;
- Informal and deliberate consensus to grow e-Resources;
- Participants fully embraced technology. This was evident when they renovated their libraries and equipped them with computers. In addition, their LibGuides demonstrated how the RC advocated access to different software and online booking for research related workshops and consultations, particularly for RC1 and RC2;
- User assessment needs was also critical for RC2;
- Home-like and new social spaces (third space) for comfort while working and studying within the research or virtual community;

- Extended operating hours to accommodate different postgraduate learning styles and needs, while also broadening access for this cohort; and
- Informal cooperation with the research office, ICT department and faculty, postgraduate students.

5.2.2 Changes Engendered by the RC Conversion Process

It is irrefutable that the most pertinent reasons for the changes experienced by libraries generally, are technology-based (Cox 2018; Dowson 2016b). Technology is not only considered as a resource (software), but also a service in a high-tech state of the art space (Dowson 2016b; Banks & Chikasanda 2015). The participants were unanimous about the need to conform to global library space trends. Hence, their respective universities undertook initiatives such as library staff development and training in order to enhance their conceptualisation of the RC model. Based on the collected data, there is no doubt that the metamorphosis of the library in its service delivery improvement trajectory has resulted in many benefits and changes, including renovations, service, collection, budget, physical space, staff, user demographic, and gate count changes. None of these changes is peripheral from the other.

Physical space changes in the RC service delivery model are necessitated by a range of factors, including the renovation, expansion or construction of a new library and addition of technological equipment and ergonomically compliant facilities room temperature and acoustics control instruments (Quagliaroli 2017; Matthews & Walton 2013). The intention is not only aesthetic, but to enhance users' efficiency when working and studying in these space commons. The participants expressed both sides of the physical space changes. On the one the change was viewed positively as enhancing separation (de-hybridisation) of the library and the RC spaces. On the other hand, it was viewed pessimistically a hybridisation (mixing) of new and old library service delivery cultures in the same building. In the latter mould, the virtual commons was viewed merely as another computer lab within the library.

Meanwhile, staff changes induced by the adoption of the RC model entailed that library staff hiring practices were reconfigured accordingly as part of a new culture adapted to the changing demands of a changing user constituency (Quagliaroli 2017; Kercival 2011). Continuous staff development and (re)training programmes (including internships and exchange programmes) through the RLC were embarked on with a new dimension

for librarians' readiness to support research; that is, understanding the 'world of research' and the 'world of the researcher' (Raju et al. 2018; De Jager 2015).

The study views changes in working with students as an important development as they are the core users of the library and paying clients of the curriculum provided to them by the university (McLaughlin & Faulkner 2012; Robinson & Reid 2007). They are postgraduates from different geographic backgrounds and socio-economic needs. They are international and local part-timers, adults with families and professional working-class, with research-based degrees requiring supervision. As such, they required tailor-made programmes, value-added LibGuide content, e-resources, collection changes. The different university leadership's special budget allocations is a much-needed incentive to improve overall library service delivery, which ultimately yielded observable gate count increases. In this regard, dwindling library door or gate counts become a negative determinant of the capacity of the library and its RC (2018).

5.2.3 Challenges Encountered in the RC Conversion Process

As stated earlier (in Section 5.1), the inherent strategies, changes and challenges in the various research objectives and questions are not peripheral to each other. As such, the themes and their categories then have an 'overlap' effect on each other also. It is against this observation that the challenges encountered in the RC conversion process are not stand-alone but are necessarily cognate from both the first and second research objectives.

Consistent with the initial lack of understanding of the RC model, there was discrepant prioritisation of library services, which was largely influenced by the parent university's order of priorities in the digital age. The characteristics of the participating institutions in the entire sub-section 4.2.3 bear testimony to the latter state of affairs. In addition, the challenge of qualified library staff (which a factor of positive staff changes for the second research question and it is simultaneously corollary research question) has virtually similar sub-categories as the self-same second research question and its corollary research question). For instance, a re-modelling of staff hiring practices or cultures implies that new staff recruitment practices should clearly stipulate the roles and responsibilities of various staff members, who also include student assistants to improve the capacity of the library to deliver on its RC mandate in particular (Litsey & Mauldin 2018). The professional librarians' job is also compromised by users' preference

of Google products over scholarly databases and proprietary software (reference management systems, statistical analysis tools, and research tools, productivity tools). The challenges encountered in the RC conversion process (which undermine the positive strategies (in RO1 and RQ1) and changes engendered (in RO2 and RQ2) are not limited to the above-cited staffing model only, but also include:

- No specified budget set aside for the RC and misconception of the commons model;
- Poor leadership, planning and collaboration; and
- A homogeneous service desk and lack of ergonomic facilities and noise control instrumentation.

5.3 Conclusions

In fact, the main conclusions constitute the global domain of the study's extent of achieving its stated objectives and synopsis of the main findings (DePoy 2020). It is in this regard that the main conclusions from the results provided a summary that served as precursor to the researcher's ultimate recommendations (Hussein 2009).

5.3.1 Attainment of Study Objectives

The extent to which the study achieved or attained its objectives is necessarily a writ large manifestation of its empirical effect and outcomes (Creswell & Plano-Clark 2018). The information in Table 5.1 below reflects that the objectives were the drivers or determinants of the type of instrumentation used to generate the data. In this regard, the study contends that the research objectives do not exist for the research instruments used. Rather, the latter (instruments) were a means to fulfil the former (attainment of objectives)

The main purpose of the study was to obtain deeper understanding of the RC conversion strategies adopted by South African public university libraries, and to identify the factors that contributed or undermined a successful conversion from a traditional academic library to an RC service delivery model. In the context of reducing the study's main purpose to its most basic practicality (the research objectives (ROs) and attendant research questions (RQs) (appearing in Section 1.5) were:

RO1: To explore strategies adopted in converting traditional academic libraries into the research commons service delivery model.

RQ1: *What are the strategies for converting traditional academic libraries to the research commons model?*

RO2: To explore those changes engendered by the conversion from traditional academic libraries into the research commons model.

RQ2: *What are the changes that were engendered by converting traditional to academic library into the research commons model?*

RO3: To identify the challenges encountered when converting from the traditional academic library to the research commons model.

RQ3: *Which are the challenges encountered during the conversion process from the traditional academic library to the research commons model?*

It is worth mentioning that the restatement of both the research objectives and questions is reflective of the existence of a nexus between the attainment of the self-same objectives and the study's relevance (Kumar 2014). In the context of the study, the attainability of the objectives is located within three thematically intertwined focal areas of the study, namely: strategies adopted in RC conversions; changes needed for RC conversion; and challenges encountered in the RC conversion process. Table 5.1 below details the extent of the study's attainment of its three specific objectives as articulated in Section 1.5. Most importantly, the table simultaneously demonstrates the inextricable association of the objectives, the findings and the data collection method by whose means these findings were generated (Taylor et al. 2016).

Following the explanation at the beginning of this section (5.3.1), it should be noted that each objective was achieved eclectically in tandem with the combined qualitative-quantitative research design approach of the study. That is, the data generated by means of the three-fold data collection methods also provided evidence to support more than a single objective. Accordingly, Table 5.1 demonstrates that strategies inherent in RO1 and RQ1 were fully attained, despite that the table is not necessarily exhaustive of all strategies adopted by the respective libraries in their RC conversion strategies and initiatives. It does show that these strategies included measure to ensure adequate conceptualisation of the RC model; success factors; collaboration; and revamping library services and facilities.

Furthermore, all of the factors in the ensuing Section 5.2 (pp. 89-93) are critical to the sustainability of the RC. If undermined, the libraries will fail to keep abreast of the development of this model. No single departmental budget or stand-alone resources can cope with the high pace emergent changes in technology, research, user needs and maintenance. It is for this reason that most of the RC-compliant international universities employ RC managers with research abilities to conduct ongoing user

assessments (Van Wyk & Kadzenga 2018; Borba, Chiari & de Almeida 2018; Quagliaroli 2017). Poor alignment of the RC service delivery model with the university mission and research activities defeats the purpose of investing in such a complex and costly concept. Lack of buy-in from the university leadership and other stakeholders will inevitably widen the resources and service gaps. Therefore, collaboration in these centralised hybrid spaces is obligatory (Harrison 2018; Mahar, Mikilewicz & Quilliam 2018; Tran 2018; Dowson 2016b; Frederiksen & Wilkinson 2016). Most importantly, the spaces should be built in consideration of the ergonomics, acoustics, and green energy to provide users with the comfort needed to work for long hours in a “third place” (Baker et al. 2018; van Merriënboer, McKenney, Cullinan & Heuer 2017; Romero et al. 2016; Choy & Goh 2016; Lewis et al. 2015).

The factors in sub-section 5.4.1 and sub-section 5.4.2 are randomized, and contribute to the success or failure of the RC conversion perspectives of the three South African university perspectives. These factors also reveal some differences compared to that of Barton (2018). The difference could be caused by the fact that SA universities mostly assumed the RC model changes in theory but lacked in the practical domain. Hence, there is no evidence of any signing of a memorandum of understanding(MOU)to formally conclude either collaborations or conversion of the reference desks into one-stop-shops. Neither of these libraries are investing in the user and space assessment projects, which reflects a predilection for ‘business as usual’ tendencies refuted by scholars such as Wexelbaum (2016).

Table 5.1: Association of attainment of study objectives and main findings

Research Objectives (RO) and Research Questions (RQ)	Main Themes	Categories
<p>RO1: To explore <i>strategies adopted</i> in converting traditional academic libraries into the research commons service delivery model</p> <p>RQ1: What are the <i>strategies</i> for converting traditional academic libraries into the research commons model?</p>	<p>Conceptualisation of the RC</p> <p>Success factors</p> <p>Collaborations/ Partnerships</p> <p>Revamped library services & facilities</p>	<ul style="list-style-type: none"> • Continuous staff development; re-modelling library staff employment policies; continuous monitoring and evaluation of progress; repurposed research agenda. • Research Library Consortium involvement; support by university leadership; compliance with global trends; donor funding for conversion support; additional funding for research post-implementation; consensus for e-resources growth; centralisation of technology in library development; user needs assessment; allocation of ‘third space’ atmosphere; • Cooperation: e.g. Research Office, ICT department, faculty, postgraduate students; • Extended operating hours for faculty & student support; increased LibGuides content
<p>RO2: To explore those <i>changes</i> engendered by the conversion from traditional academic library into the research commons model</p> <p>RQ2: What are the <i>changes</i> that were engendered by converting from a traditional academic library into the research commons model?</p>	<p>Physical space changes;</p> <p>Staff changes;</p> <p>Changes in working with students and service changes;</p> <p>Collection changes;</p> <p>Budget changes;</p> <p>Gate count changes</p>	<ul style="list-style-type: none"> • Refurbished & renovated colourful interiors; additional modern buildings (de-hybridisation); improved amenities (e.g. café, kitchenette, vending machines); • Re-modelled staff hiring practices with clear roles and responsibilities; contract employment of student assistants; • Tailored postgraduate training sessions; • Research support books, leisure & classical materials, e-resources; • Improved multimedia communication for local and international students; • Additional private sector & university funding; • Medium-to-significant gate count increases
<p>RO3: To identify the <i>challenges encountered</i> when converting from the traditional academic library to the research commons model</p>	<p>Discrepant prioritisation of library services;</p> <p>Qualified library staff</p>	<ul style="list-style-type: none"> • Poor RC conversion, IT compliance • Continuous staff development and M&E; • Role clarification, poor staff recruitment models

<p>RQ3: Which are the <i>challenges encountered</i> during the conversion process from the traditional academic library to the research commons model?</p>	<p>Infrastructure & facilities challenges</p> <p>Funding challenges</p>	<ul style="list-style-type: none"> • Poor social commons, uncontrolled temperature, sparse furnishing, ergonomic compliance • Hybridisation/ Embeddedness of old and new models in same buildings;
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Similar to the realisation of RO1 and RQ1, there was maximum attainment of RO2 and RQ2. However, the extent of attainment shown in Table 5.1 is not necessarily indicative of all changes engendered by the RC conversion processes of the libraries represented in the study, due to the plethora of these changes and their corollary applicability in the different objectives and research questions. Table 5.1 shows that there are renovation, service, collection, budget, physical space, staff and user demographic changes that were cited as emanating from the RC implementation processes. The range of related thematic categories associated with these changes provides sufficient evidence of the study's satisfactory achievement of RO2 and RQ2.

It is instructive that the challenges inherent in RO3 and RQ3 are also inclusive of those that accrue from strategies adopted (RO1 and RQ1) and changes engendered (RO2 and RQ2) in the three libraries' RC conversion processes.

While all the research objectives were satisfactorily accomplished with all their attendant research questions, it should be mentioned that the degree of such accomplishment varies across libraries, given the historical and other dynamics characterising the South African higher education ecology. Table 5.1 shows that the RO3 and RQ3 (together with their categories) were sufficiently achieved with the demonstration of discrepant prioritisation of service; infrastructure and facilities challenges; staff qualifications; and funding challenges, among others.

5.4 Recommendations

The main purpose of the study was to obtain deeper understanding of the RC conversion strategies adopted by South African public university libraries, and to identify the factors that contributed or undermined a successful conversion from a traditional academic library to an RC service delivery model. Accordingly, the study's recommendations are aligned and cohere with Barton's (2018) three-phased learning commons implementation phases as shown in Figure 2.2 (p. 24) of this study. In this regard, these three cyclical stages (creating the essential conditions; the implementation of the physical and virtual commons; and the prevention or collapse of a learning common, the "tragedy of commons") further align with the study's recommendations.

These recommendations also align sequentially and substantively with the research objectives and their attendant research questions in respect of adopted strategies,

changes made, and challenges experienced in the process of implementing the RC service delivery modelB.

5.4.1 Strategies Needed for RC Conversion of a Traditional Academic Library

The study recommends that the **Phase 1** (essential conditions of the *cultural commons*) be incorporated as the foundational RC conversion process in concert with the proposition by Barton (2018). Table 5.2 below illustrates the summarised process steps and components of the Phase 1 essential conditions.

Table 5.2: Phase 1 essential conditions

Element	Actions
Shared vision, strategic plan; Leadership; Research; Resources; Training.	Working with stakeholders; Support and engagement; Webinars, site visits, surveys, interviews; Technology, online, and print resources; Professional development, student training.

Source: Barton (2018)

The first step in Phase 1 enhances the social commons dimension of RC and entails the involvement of unorthodox stakeholders (e.g. postgraduates, writing office and research office) for their thoughts and views prior to the adoption of the RC model. This will obviate misconceptions and poor planning and enhance collaboration by bringing previously diverse departments and stakeholders (Perrault *et al.* 2011). The fundamental purpose of this **phase 1** recommendation is to create a pool of collaboratively endorsed resources to enhance the mission of their parent institutions as intended.

5.4.2 Factors Contributing to Successful RC Conversion

Following the recommended phase 1 adoption of the *cultural commons*, the study further recommends the adoption and implementation of **Phase 2** (*physical and virtual commons*) for the successful conversion to the RC model of library services delivery. This hybrid physical place extends its services to the virtual commons by creating a desirable, functional, flexible, high-tech state-of-the-art setting as projected in the three-domain diagram of the commons as portrayed in Figure 2.2 (see p. 24) of this study.

Ideally, the physical commons should extend its services to the virtual commons whose primary functionality premises on cloud computing. The virtual commons accentuate communication, services and resources beyond the physical place. It is established on the technical infrastructure to provide access to research, learning resources for

students beyond bricks and mortar to accommodate both residential and distance learners (Cunningham & Tabur 2012; McLaughlin & Faulkner 2012; Kent & Myrick 2003). From the perspective of the study, this recommendation is synergistic and complementary to the recommendation in sub-section 5.3.1 and ensures that the RC conversion occurs within a planned and collaborative framework.

5.4.3 Factors that Undermine the RC Conversion Process

Congruent with the study's adoption of Barton's (2018) process steps, it is further recommended that **Phase 3** (avoidance of the *tragedy of the commons*) should be adopted by libraries that are desirous of deriving maximum benefit from the RC model. As shown in Figure 2.3 (p. 26), all of the evolving learning commons matrix factors will determine the future sustainability of the RC model and obviate a costly tragedy of commons characterised by catastrophic process failures (Fox & Keisling 2016). The evolving learning commons matrix factors encompasses centralised leadership, finance, change management, talent management, risk management and entrepreneurial activities. In essence, then, the recommendation for the incorporation of Phase 3 of the process steps is based on the facilitation of a window of opportunity for academic libraries to operate beyond the library borders (Barton 2018; Ojennus & Watts 2017; Fox & Keisling 2016; Stewart 2011).

5.4.4 Recommendations for Further Studies

The recommendation for further study is premised largely on the furtherance of RC conversion planning and implementation strategies in order to obviate failure and the "tragedy of commons" allude to by Barton (2018:12). Based on this research study's findings, the researcher recommends that future research on implementation of the research commons service delivery model should focus their investigations on:

- Universities in terms of their research, intensive, public, or private categories;
- Universities that are in the implementation process in order to determine the underlying principles guiding their particular transition;
- How universities in the Gauteng Province region in particular have managed the incipient processes and factors that guided them; and
- Collaboration models and staffing models in the region.

It is the study's contention that the above-stated recommendations for further study will enhance the epistemological domain of library sciences in general, and RC conversions in particular; all of which is envisaged to enhance the study's value as well.

5.4.4.1 Rationale of the recommendations

The rationale of the four-fold recommendations made in sub-sections 5.4.1 to 5.4.4 premises on the proposition of cogent and realistic measures which South African academic libraries may consider in their strategies or approaches of converting from traditional libraries to the (post-traditional) RC model. Figure 5.1 below provides an eclectic literature-based summary on whose basis the rationale was derived.

It is evident in Figure 5.1 that a symmetrical integration of both the theoretical assumptions and university priorities is seminal to the successful implementation of RC in the South African context. For instance, the opacity of a university's vision (as highlighted in Phase 1), the established physical commons would most likely be stifled by the erstwhile traditional ways, especially in the event that the RC is (a hybrid) part of the traditional library. It is futile to assume this service model without a semblance of collaborated stakeholder consensus, since roles and responsibilities should be shared and well-articulated from the very beginning. Basically, stakeholders should redefine the vision and create a new structure (Daland & Walmann Hidle 2016; Hanson & Abresch 2016; Association of Commonwealth Universities 2015).

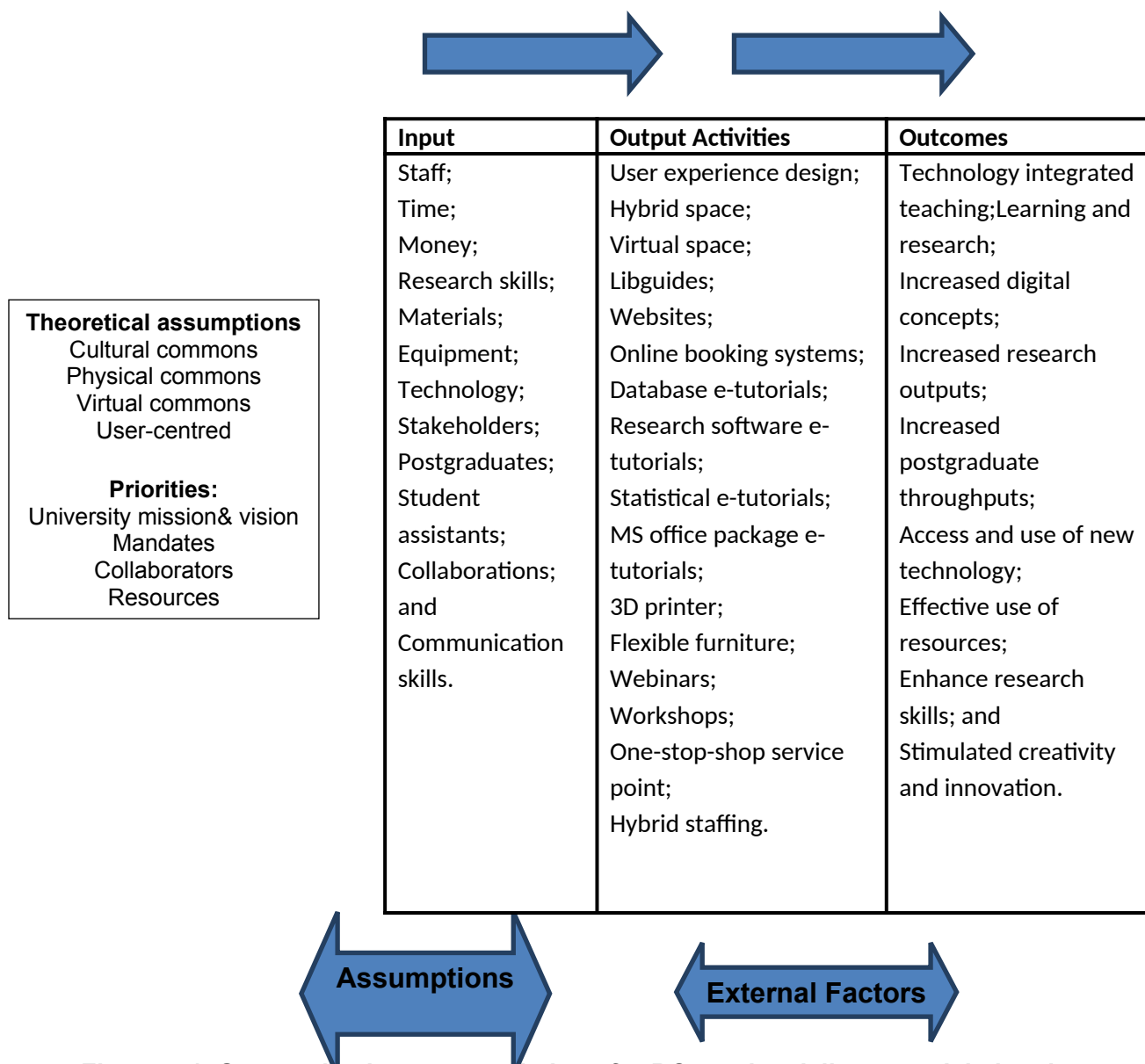


Figure 5.1: Summarised recommendations for RC service delivery model planning
 Source: Researcher's own adaptation from eclectic sources

Research conversions are not one-time projects (Bonnand & Donahue 2010). They are an ongoing investigation of user's needs, user demographics and learning styles, ICT developments, teaching and learning modes. As a result, long and short-term budgets are critical to keep up with technological developments.

In theory, South African scholars concur with the international scholars about the principles underpinning the RC model as shown in Table 2.1(Raju et al. 2016). However, it is in the practice domain that underlying RC misconceptions prevail, which has affected the implementation and operational undertakings relating to services, resources and space(Daniels et al. 2010). Redesigning the library space alone cannot

define the model, while services and resources still reflect the same traditional library perspectives and patterns of functioning.

The development of the RC services model in South Africa is undermined by, amongst other factors, the proper understanding of the related terminology; including concepts such as IC, LC, RC and RS. It is against such a background that the study considers the fusion of Figure 5.1 into the general mould of recommendations proposed in this study (Raju et al. 2018; de Jager, Nassimbeni & Crowster 2014; Crowster et al. 2013; De Jager et al. 2013; Bonnand & Donahue 2010; Hochberg, Chase, Gotelli, Hastings & Naeem 2009).

5.5 Concluding Remarks

The concluding remarks basically highlight the researcher's familiarity with the problem being investigated, particularly insofar as its magnitude is concerned. Both the researcher's professional background and work experience are cogent factors to adequately justify the various issues raised. It is on the basis of daily interactions with postgraduate students in particular, that the researcher is convinced of the role of the RC service model in helping students reach their academic potential.

Apart from literature-based assertions, the researcher is fully cognisant of the challenges experienced by the part-time category of postgraduates who are full-time employees to whom research poses 'threatening' challenges. Based on her professional role as librarian of the largest open distance learning university in the country, the researcher can fully attest to the range of IT challenges confronting this category of students. As much as the study calls for much-needed and IT-compliant changes in the functioning of academic libraries, it is also an attempt to highlight the plight of research students in their quest to becoming better researchers.

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APPENDIX A: UNISAETHICAL CLEARANCE CERTIFICATE



DEPARTMENT OF INFORMATION SCIENCE ETHICS REVIEW COMMITTEE

16 January 2020

Dear Ms Refilwe Matatiele

Decision:

**Ethics Approval from 16
January 2020 to 16 January
2024**

DIS Registration #: Rec-150120

References #: 2020-DIS-0001

Name: R Matatiele

Student #: 47209704

Researcher(s): Ms Refilwe Matatiele

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Supervisor(s): Dr Tinashe Mugwisi

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**Strategies for converting traditional academic library spaces to research
commons: a South African perspective.**

APPENDIX B: LETTER OF REQUEST TO RESEARCH SITE 1



**Request for permission to conduct research at the University of Johannesburg
Library Services' Research Commons**

Director: Client Services
Library Building,
Kingsway Campus Library
Auckland Park
Johannesburg
2006
16 January 2020

Dear Ms. Mahlangu N.

I, Refilwe Matatiele am doing research with Dr. T Mugwisi (Lecturer) from the Department of Information Science towards a MA degree at the University of South Africa. We are inviting you to participate in a study titled:

**Strategies for converting traditional academic library spaces into Research
Commons: A South African perspective.**

The purpose of this study is to investigate strategies in sustaining a successful research commons and challenges encountered when converting academic traditional library model into the research commons model.

Your company has been selected because it is one of the four Gauteng province universities that have implemented the Research Commons service delivery model.



University of South Africa
Pretter Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4190
www.unisa.ac.za

Therefore, this study's aim is to investigate strategies of converting traditional academic library spaces into Research Commons. And to identify success and detrimental factors encountered during the transitioning process

The study will entail the distribution of the prepared open-ended questionnaire, semi-structured interview to the librarians who were part of the conversion project and are working in the RC, (who are willing to participate in the study). Additional information will be collected through a nonparticipants' observation and online and print documents about the conversion process. This exercise shall be carried out by the researcher, who is one of the librarians working in the Research Commons. The data will be collected in December-January 2020. No potential risks are associated to this study.

The benefits of this study are three folds,

This study is expected to collect important information that could:

Investigate the strategies encountered when converting traditional library spaces into the research commons.

Provide librarians and university administrators with factors that are contributing to the success or failure of the research commons when planning a similar conversion project.

Assist librarians to implement the research commons service delivery model as a key step that integrate technology, services, staff and users to support postgraduates research and learning needs for the library to remain relevant in the 21st century higher education landscape.

Feedback procedure will entail a couple of academic papers shall be generated from the study, which would be published in accredited journals.

Yours sincerely

Refilwe Matatiele



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Pretter Street, Muckleneuk Ridge, City of Tshwane
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APPENDIX C: LETTER OF REQUEST TO RESEARCH SITE 2

Request for permission to conduct research at University of Pretoria Library
Services' Research Commons

**Strategies for converting traditional academic library spaces into Research
Commons: A South African perspective**

Deputy Director
Department of Library Services
Room 4-26, Level 4, Merensky 2 Library
University of Pretoria, Private Bag X20
Hatfield 0028, South Africa
Email: Lazarus.matzirofa@up.ac.za

16 January 2020

Dear Ms Mahlangu N.

I, Refilwe Matatiele am doing research with Dr. T Mugwisi (Lecturer) from the Department of Information Science towards a MA degree at the University of South Africa. We are inviting you to participate in a study entitled:

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The study will entail the distribution of the prepared open-ended questionnaire, semi-structured interview to the librarians who are working in the RC, (who are willing to participate in the study). Additional information will be collected from the nonparticipants' observation and online and print documents about the conversion process. This exercise shall be carried out by the researcher, who is one of the librarians working in the Research Commons. The data will be collected in December-January 2019. No potential risks are associated to this study.

The benefits of this study are three folds,

This study is expected to collect important information that could:

Investigate the strategies encountered when converting traditional library spaces into the research commons.

Provide librarians and university administrators with factors that are contributing to the success or failure of the research commons when planning a similar conversion project.

Assist librarians to implement the research commons service delivery model as a key step that integrate technology, services, staff and users to support postgraduates research and learning needs for the library to remain relevant in the 21st century higher education landscape.

Feedback procedure will entail a couple of academic papers shall be generated from the study, which would be published in accredited journals.

Yours sincerely

Refilwe Matatiele

Signature of researcher 



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APPENDIX D: PARTICIPANT INFORMATION SHEET

16 January 2020

Dear Prospective Participant,

My name is Refilwe A. Matatiele and I am doing research with Dr T. Mugwisi from the Department of Information Science towards a Masters (MA) degree at the University of South Africa. We are inviting you to participate in a study entitled: **Strategies for converting traditional academic library spaces into Research Commons: A South African perspective.**

The study in which you are being asked to participate is designed to investigate the experiences of research commons managers in converting a traditional library into a research commons service delivery model.

This study is expected to collect important information that could:

Investigate the planning and processes encountered when converting traditional library spaces into the research commons.

Provide librarians and university administrators with factors that are contributing to the success or failure of the research commons.

Assist librarians to implement the research commons service delivery model as a key step that integrate technology, services, staff and users to support postgraduates research and learning needs for the library to remain relevant in the 21st century higher education landscape.

Participation to this study is voluntary, and participants may refuse to participate or discontinue participation at any time. While you may not directly benefit from this study since your institution has undergone this transitioning process already, information collected may benefit other libraries and educational institutions that will convert their traditional library space into the research commons.

You are selected to participant in this study for two reasons firstly you are one of the four academic libraries in Gauteng province that have converted their traditional library model into the RC model. Due to lack of the population frame, a case study design is used to gather contemporary data from university libraries that have converted their traditional libraries into the RC. The researcher determined the number of participants from the number of converted spaces and librarians in the respective Research Commons.

Participation in this study is voluntary and you are under no obligation to consent to participate. If you do decide to take part, you will be given this information sheet to keep and be asked to sign a written consent form. The identity of the institutions of the research commons and librarians participating in this study will remain anonymous since you will not be required to furnishing your personal details. However, once your filled questionnaire is submitted, you will not be able to withdraw.

Since the study involves open-ended questionnaires, semi-structured interview, nonparticipants observation and documents analysis as an instrument for collecting data for this study. The questionnaire will be emailed to the participants prior to visiting the Research Commons for a face-to-face one-on-one interview with the librarians. There after a nonparticipant observation will be conducted. Additional information will be collected from online documents and printed documents related to the conversion process.

The study could be used as a springboard for any researcher who may want to conduct a similar study on the Research Commons model.

This study will educate librarians about the elements of the Research Commons service delivery model. And best practice in converting a traditional academic library spaces into the Research Commons. It will also identify factors that are contributing to the Research Commons success and failure.

This study will not pose any potential level of inconvenience and/or discomfort to the participant whatsoever.

Privacy and confidentiality of information will be maintained always at all levels. Hence, as a participant, you have the right to insist that your name should not be documented anywhere and that no one, apart from the researcher and identified members of the research team, will know about your involvement in this research, therefore no one will be able to connect you to the answers you give. Your answers will be given a code number, or a pseudonym and you will be referred to in this way in the data, any publications, or other research reporting methods such as conference proceedings.

It might be necessary for the transcriber and or statistician to have access to the data for data analysis purposes but since your personal details will not be on the questionnaire, they will not know who the participants for this study are. These individuals will maintain confidentiality by signing confidentiality agreement. Your answers may be reviewed by people responsible for making sure that research is done properly, including the transcriber, external coder, and members of the Research Ethics Review Committee. Otherwise, records that identify you will be available only to people working on the study, unless you give permission for other people to see the records.

Data collected from participants might be used for other purposes, such as a research report, journal articles and/or conference proceedings without exposing participant's identity. Study findings will be published and reported without invading your privacy.

Hard copies of your answers will be stored by the researcher for a period of five years in a locked cupboard/filing cabinet at home. For future research or academic purposes; electronic information will be stored in the UNdrive, i.e. the Unisa web-based storage protected on a password. Future use of the stored data will be subject to further Research Ethics Review and approval if applicable. Since this study will use hard copies, they will be shredded, and the researcher electronic copies will be permanently deleted.

Participants will not receive any payment or reward of any sort. Any costs incurred by the participant should be explained and justified in adherence with the principle of fair procedures (justice).

If you would like to be informed of the final research findings, please contact Refilwe A. Matatiele on +27 12 429 2894, matatra@unisa.ac.za. The findings will be accessible at <http://libguides.unisa.ac.za/researchcommons> and Unisa institutional repository.

Should you have concerns about the way in which the research has been conducted, you may contact Dr T. Mugwisi on +263-775 990 309, tmugwisi@gmail.com. Alternatively, contact the research ethics chairperson of the Higher Degrees Committee in the College of Human

Sciences, the name of the research ethics chairperson Dr Isabel Schellnack-Kelly.
schelis@unisa.ac.za

Thank you for taking time to read this information sheet and for participating in this study.

APPENDIX E: INTERVIEW CONSENT FORM

I _____ (participant name), confirm that the person asking for my consent to take part in this research has told me about the nature, procedure, potential benefits and anticipated inconvenience of participation.

I have read (or had explained to me) and understood the study as explained in the information sheet.

I have had sufficient opportunity to ask questions and am prepared to participate in the study.

I understand that my participation is voluntary and that I am free to withdraw at any time without penalty (if applicable).

I am aware that the findings of this study will be processed into a research report, journal publications and/or conference proceedings, but that my participation will be kept confidential unless otherwise specified.

I agree to the recording of the face-to-face one-on-one interview session.

I have received a signed copy of the informed consent agreement.

Participant Name & Surname..... (Please print)

Participant Signature..... Date.....

Researcher's Name & Surname..... (Please print)

Researcher's signature..... Date.....

APPENDIX F: INTERVIEWPROTOCOL

Institution	Interviewee
Date	Time
Description of the project	
<p>This study is designed to explore the various factors involved in transitioning a traditional academic library to the Research Commons model. The approach to this qualitative study will be a series of questions designed to gain insight into various aspects of the transition, and finally to ask the participant to reflect upon the process and possibly identify factors not previously identified.</p> <p>The interview will cover factors identified by the researcher as influential in the transition process.</p>	

Interview Questions

Topic	Q	Question
A. Educational/Professional background	Q1	Please describe your educational background
	Q2	How many years have you been an academic librarian?
	Q3	How many years have you been at your current institution?
D. Institutional Description	Q4	What type of community does this university serve in the research commons Post graduates , research fellows, staff
	Q5	What percentage is postgraduate students? 80%
F. Research Commons	Q6	What made you decide to change from a traditional library model to a research commons model? Global trends, responding to use needs because they needed their space
	Q7	Describe how you introduced the concept of the change to your university leadership.
	Q8	Describe the most significant changes, if any, you have experienced since transitioning to a research commons service model.
	Q9	Describe the changes, if any, you have experienced in your position and work responsibilities.
	Q10	Describe the changes, if any, you have experienced in working with students.
	Q11	Describe the most common student activities within the research commons.
	Q12	Describe the most common faculty activities within the research commons.
M. Transitioning Challenges	Q13	Describe the factors that contributed to the success of the transition.
	Q14	Describe the challenges and obstacles of the transition.
O. Changes Made for the Transition	Q15	As part of the transition, what changes did you make to the physical space?
	Q16	As part of the transition, what changes did you make to the library services?
	Q17	As part of the transition, what changes did you make to the library collection?

	Q18	As part of the transition, what changes did you make to purchasing and budgeting?
	Q19	As part of the transition, what changes did you make to staff?
	Q20	Describe activities that are taking place in the virtual commons.
F. Reflection		Please reflect on the process of the transition. What aspects worked well, and what aspects did not work well.

Adapted from Barton (2018:113)

APPENDIX G: RESEARCH COMMONS ASSESSMENT QUESTIONNAIRE

I look forward to visiting your campus on the **date allocated by yourself here**, for further investigation through face-to-face interview and nonparticipation observation of the Research Commons facilities.

In preparation for my visit, would you take a few minutes to answer the following questions?

A. How would you describe the change in the gate count after implementation of the Research Common model in your library?

- Decrease
- No increase (Same)
- Moderate Increase (Less than 20%)
- Medium Increase (21% - 30%)
- Significant Increase (more than 30%)

B. Please rate the importance of the following services in the library.

	Very Important	Important	Somewhat Important	Not very important	Not Applicable
Research Commons	5	4	3	2	1
Research support	5	4	3	2	1
IT support	5	4	3	2	1
Writing support	5	4	3	2	1
Tutoring	5	4	3	2	1
Plagiarism support	5	4	3	2	1
Referencing support	5	4	3	2	1
Statistical support	5	4	3	2	1
Productivity tools support	5	4	3	2	1
24/7 access	5	4	3	2	1
Other					

C. Please rate the importance of the following resources in your Research commons.

	Very Important	Important	Somewhat Important	Not very important	Not Applicable
Print books	5	4	3	2	1
Online databases	5	4	3	2	1
Search engines e.g. Google	5	4	3	2	1
YouTube	5	4	3	2	1
Copy, print, scan services	5	4	3	2	1
Wi-Fi connection	5	4	3	2	1
Computer workstations	5	4	3	2	1
Borrow tablet PC/laptops, projectors, software and headphones	5	4	3	2	1
Electrical outlets	5	4	3	2	1
Other					

D. Please rate the importance of the following spaces in your library.

	Very Important	Important	Somewhat Important	Not very important	Not Applicable
Quiet study area	5	4	3	2	1
Group study rooms	5	4	3	2	1
Flexible spaces comfortable, and movable furnishings	5	4	3	2	1
Media Lab/Studio for work on	5	4	3	2	1

multimedia projects					
Café	5	4	3	2	1
Research Commons	5	4	3	2	1
auditorium	5	4	3	2	1
Training / workshop room	5	4	3	2	1
Other					

E. What are the top two activities of the postgraduate students when they visit the Research Commons?

1. Individual study
2. Research
3. Write a paper
4. Group Study/Use group study rooms
5. Use computers, printers or copiers
6. Use library Wi-Fi
7. Get research assistance
8. Check out or return library materials
9. Relax/socialize
10. Other: _____

F. Are there any other comments/suggestions that you would like to share?

G. Please provide any additional information you may have

<p>What is staffing model used in your RC?</p> <p><input type="checkbox"/> hybrid staffing model</p> <p><input type="checkbox"/> homogeneous staffing model</p>	<p>What is the size your RC staff?</p> <p><input type="checkbox"/> Less than 10</p> <p><input type="checkbox"/> More than 10 but less than 20</p> <p><input type="checkbox"/> More than 20</p>
<p>What is the size of your annual budget dedicated to the RC?</p> <p><input type="checkbox"/> Less than R500,000.00</p> <p><input type="checkbox"/> More than R500,000.00 but less than R1,000,000.00</p> <p><input type="checkbox"/> More than R1,000,000.00</p>	<p>What is your RC average hours of operation per week?</p> <p><input type="checkbox"/> Less than 100</p> <p><input type="checkbox"/> More than 100 but less than 150</p> <p><input type="checkbox"/> More than 150</p>

Adapted and adjusted from Barton (2018)

APPENDIXH:OBSERVATION GUIDE

Best practices	RC1	RC2	RC3
Embedded in the existing library Separate building			
Playful atmosphere Movable and contemporary furniture Controlled temperature Lighting Lounge areas Kitchenette Vending machines Big tables Small tables Coffee tables Small shelves for research selected print material Integrated reference/ research/IT desk Phone booths			
Individual Group Collaborative spaces Seminar spaces laptop spaces Writing lab Research office Meeting rooms			

APPENDIX I: TURNITIN REPORT

